

The Mining Journal RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 737.—VOL. XIX.]

London, Saturday, October 6, 1849.

[PRICE 6D.

Statutes of Cornwall—In the Vice-Warden's Court.

IN THE CONSOLIDATED CAUSES OF
MITTO v. HOWE.

STRONGMAN AND OTHERS v. SAME.

IN RE CUBERT SILVER-LEAD MINES.

NOTICE IS HEREBY GIVEN, that the SALE of the MINING MACHINERY and MATERIALS of the said CUBERT SILVER-LEAD MINES, advertised to take place on Tuesday, the 16th day of October inst., on the said mine, will not be held on that day, and is POSTPONED until further notice.

MR. GEORGE NICOLLS SIMMONS, Solicitor, Truro.

Dated Registrar's Office, Truro, Oct. 2, 1849.

Statutes of Cornwall—In the Vice-Warden's Court.

FRANCIS v. CAVE.

WHEREAS the VICE-WARDEN did, by an ORDER of this COURT, made in this cause, and bearing date the 27th day of August last, Order and Decree that a SALE be made of the ORES, and (if necessary) the ENGINES, MACHINERY, and MATERIALS upon and belonging to PEMBERTHY CROFTS MINE, in the parish of SAINT HILARY, within the said Statutes, under the direction of the Registrar of this Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the same Order or Decree.

Notice is hereby given, that, pursuant to the said Order or Decree, a PUBLIC AUCTION will be HELD at PEMBERTHY CROFTS MINE aforesaid, on Monday, the 15th day of October next, at Eleven o'clock in the forenoon, for SELLING, either together or in lots,

THE UNDERTAKING.

MINING MACHINERY AND MATERIALS—VIZ.:

21 17-inch pumps, 9 feet long; 1 17-inch ditto, 6 ditto, 1 15-inch ditto, 1 11-inch ditto, 9 ditto, and 2 matching pieces, 1 16-inch windorse, 9 ft. long, 1 15-inch ditto, 6 ditto, top-doorpiece, 1 16-inch clackseat and door, 1 16-inch working piece, 11 ft. long, 1 17-inch pole-piece, 7 ditto, 5 stripping plates, 1 16-inch pole-case, 1 15-inch plunger-pole, studding-box and gland, iron-work for two bobs—viz., gudgeons, troughs, brasses, pins, braces and saddles, 7 pairs lagged iron caps, 4 cwt. of brass, several pairs of rods, plates, large staples and glands, bolts, flange and rod-bolts, sundry pieces of oak and deal, and a quantity of old cast and wrought-iron, brass, &c.

For viewing the same, application may be made to Mr. Morris, at the mine; and for further particulars (if by letter, pre-paid) to MR. CHILCOTT, Solicitor, Truro.

Dated Registrar's Office, Truro, Sept. 26, 1849.

Statutes of Cornwall—In the Vice-Warden's Court.

KEAST v. VERRAN.

WHEREAS the VICE-WARDEN did, by an ORDER of this COURT, made in this cause, and bearing date the 27th day of August last, Order and Decree that a SALE be made of the ORES, and (if necessary) the ENGINES, MACHINERY, and MATERIALS upon and belonging to TREWETHA MINE, in the parish of ENDLETON, within the said Statutes, under the direction of the Registrar of this Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the same Order or Decree.

Notice is hereby given, that, pursuant to the said Order or Decree, a PUBLIC AUCTION will be HELD at TREWETHA MINE aforesaid, on Friday, the 19th day of October last, at Twelve o'clock, at noon, for SELLING, either together or in lots,

THE UNDERTAKING.

MINING MACHINERY AND MATERIALS—VIZ.:

15 fathoms of pumps, 11 in number, capsins, shears, balance-box, 5 ash and elm trees, 1st of timber, 60 fathoms of iron-rods, lot of iron, 4 dozen new antimony bags, beam-scales, and weights, 6 iron pulleys, 4 dozen piec-hills, 2 dozen shovel-hills, 3 pump boxes, a quantity of powder, 3 wheelbarrows, 2 copper sieves, iron wire ditto, flange and other bolts, smids' and miners' tools, tackle, &c.

For viewing the same, application may be made to Mr. John Sealy, at the mine; and for further particulars (if by letter, pre-paid) to MR. CHILCOTT, Solicitor, Truro.

Dated Registrar's Office, Truro, October 2, 1849.

DUDLEY, WORCESTERSHIRE.

IMPORTANT AND EXTENSIVE SALE OF STEAM-ENGINES, RAILWAY PLANT, CARTS, HARNESS, &c.

TO ENGINEERS, RAILWAY CONTRACTORS, BUILDERS, COLLIER OWNERS, &c. MR. G. O. BROWN begs to inform his numerous friends, that he is selected by the executors of the late Joel Buxton, Esq., to offer for unreserved COMPETITION, BY AUCTION, at DUDLEY, on the Oxford, Worcester, and Wolverhampton Railway, on Monday, the 15th of October, and three following days, their truly valuable and extensive stock of

RAILWAY PLANT.

COMPRISED FOUR STEAM-ENGINES, &c. &c.—VIZ.:

1 3-horse portable (Gough's patent) high-pressure engine complete; 1 4-horse portable (Gough's patent) high-pressure engine complete, and one extra tubular boiler; 1 14-horse high-pressure horizontal engine, with boiler, &c., complete; 1 16-horse high-pressure beam engine, but without a boiler.

1 new fly-wheel, weight about 3 tons; 1 other fly-wheel, from 19 to 15 cwt.; 2 4-inch metal engine-pumps, with sundry metal pipe; 2 6-inch metal engine-pumps, with sundry lengths of pipe; 2 metal hand pumps; and 1 horse-pump with horse gear and machinery complete.

A large quantity of MINE and PIT MACHINERY, such as winding, drawing, and head gear, small trolleys with wheel, axles, &c., complete; 10 large pit top or landing trolleys with wheels, axles, &c., complete; 40 wrought iron and wood skips, 6 large quantity of pit chains, pit tools, in great variety, such as drills, drifts, bars, picks, fire grates, oil lamps, &c., &c.

10,000 sleepers, 7 feet long, suitable for collieries.

20,000 lineal feet of 3 by 2-inch, and 3 by 1½-inch planks.

5,000 cubic feet of Mansel, elm, and other timber.

A large quantity of short balk ends, and other timber, all of which will be sold in lots to suit purchasers.

100 2½-yard earth waggons, in excellent working condition; 100 wheelbarrows; 9 one and two-horse carts; 1 pair of timber carts; 12 three-wheeled carts.

1 excellent dog cart; one screw press (on a carriage) for strengthening rails.

200 tons of flat-bottomed rails, from 35 to 45 lbs. per yard.

60 tons of scrap iron and scrap metal, 10 tons of bolts and nuts, from 4 to 18 inches long.

2 hearths of smithy tools, comprising bellows, anvils, vice, tongs, hammers, swages, &c.

Several sets of loose wheels and axles (new). All the building materials, stable fittings, and fixtures, included in the stables, workshops, &c., in the yard.

50 sets of cart and thriller harness, together with numerous other effects, too varied to be particularized.

The ENGINES will BE SOLD on TUESDAY, at One o'clock.

Dudley possesses most excellent facilities for water or land carriage, being close to the canal in communication with all parts of the kingdom, and is distant 10 miles from Birmingham, 6 miles from Wolverhampton, and 5 miles from Stourbridge.

The sale will commence each day at Ten o'clock, and the goods will be divided into such lots as will suit customers.—*Makro*, September 23, 1849.

WHITWELL COLLIERY.

MR. W. I. BARKER will PREEMPTORILY SELL, BY AUCTION, on Tuesday, October 16, 1849, at Twelve o'clock at noon, for One pre-cisely, at the George Inn, Pilgrim-street, NEWCASTLE-UPON-TYNE.

THIRTY-EIGHT (64ths) SHARES

(late of Messrs. Andrew White and Richard White) of and the well-known current-going and most excellent colliery, called the WHITWELL COLLIERY, situate at WHITWELL, in the county of DURHAM, comprising a royalty of upwards of 635 acres, or thereabouts, of coal of first-rate quality, there being two seams opened out—the Hatton Seam and Low Main Seam, worked by two pits, and with pitmen's houses, workshops, engines, machinery, and all necessary stock and conveniences for carrying on the colliery on an extensive scale.

The colliery is situate adjoining to and communicating with the main line of the York, Newcastle, and Berwick Railway (the Durham and Sunderland Branch whereof is connected to the bank head), and the coal can be shipped either at the ports of Sunderland or Hartlepool, or on the River Tyne. The convenient situation, high reputation of the coal, and many other advantages of this colliery, afford an excellent opportunity for any one desirous of an investment in a colliery, and the purchaser of these shares will be entitled to the acting direction and management of the undertaking.

The colliery may be viewed on application to Mr. Robson, Whitwell Grange, near Durham; and further particulars known on application to Messrs. J. J. and G. W. Wright, solicitors, Sunderland.—Sunderland, August 30, 1849.

WEST OF SCOTLAND MALLEABLE IRON-WORKS, AND LANDS OF BRAIDHURST AND MILTON.

TO BE SOLD, BY PUBLIC ROUP, within the Royal Exchange Sale Rooms, Glasgow, on Wednesday, the 24th day of October, 1849, at One o'clock afternoon.

MALLEABLE IRON-WORKS.

These large WORKS, belonging to the West of Scotland Malleable Iron Company, situated at MOTHERWELL, in the parish of Dalsie, and county of Lanark, with a little further outlay capable of producing about 600 tons of finished iron weekly.

Upset Price, £40,000.

LANDS OF BRAIDHURST AND MILTON.

These LANDS contain, including the fenc'd ground, about THREE HUNDRED and NINETY ACRES, and will be SOLD with the MINERALS therein.

Upset Price, £25,000.

All as described in former Advertisements.

For further particulars, application may be made to James Anderson, at the company's office, 88, St. Vincent-street; or to Moncrieff, Paterson, and Forbes, 45, West George-street, Glasgow, in whose hands are the title deeds and articles of roup, and plans of the property.—Glasgow, Sept. 26, 1849.

NORTH WALES.—VALUABLE SLATE QUARRIES FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, those VALUABLE QUARRIES, called the CAMBRIAN SLATE QUARRIES, situate in the neighbourhood of FESTINIOG, in the county of Merioneth. They have for some time been in full operation, and producing a material of first-rate quality, at a comparatively trifling cost, being in the side of a mountain, water free, and not having more than from 10 to 12 feet "bearing."—The above property is well worth the attention of capitalists, both from its position and capability of producing, at a slight additional outlay, an almost unlimited quantity of slate.—For particulars apply to

Mr. MICHAEL FORSTER, Mining Engineer, Conway, North Wales.

N.B.—These quarries are sufficiently opened out to develop both the quality of the slate and the capability of the extension of the works.

Conway, October 2, 1849.

TO BE DISPOSED OF, the MANUFACTURING PREMISES, BUSINESS, and CONNECTION (which is of a first-rate character), of a well-established MACHINERY GREASE MAKER.

Also, several PATENT RIGHTS, FREEHOLD ESTATES, LEASES OF FOUNDRIES and ENGINEERING WORKS, FREESTONE QUARRY, and COAL and IRONSTONE MINES; SHARES in a well-known SLATE QUARRY, the PART, or the WHOLE, of a well-established GAS WORK & STEAM-ENGINES and MACHINERY of all descriptions.

For particulars apply to James Boydell, land, mine, and machinery valuer, and agent, No. 54, Threadneedle-street, London.

VALUABLE AND EXTENSIVE MINES OF COAL AND IRONSTONE.

TO BE LET, ON LEASE, on most advantageous terms, the COAL and IRONSTONE under a very large tract of land, in the parish of RUABON in the county of DENBIGH, adjoining the Shrewsbury and Chester Railway.

The proprietors of the ESTATES on which the Ponkey and Aberderyn Iron-Works were formerly carried on, have made arrangements TO LET BOTH PROPERTIES TOGETHER, which will give the lessee of them facilities to carry on a lucrative business very rarely to be met with.

The COALS and IRONSTONE on these ESTATES may be raised at very much less than an average cost, and the quantity proved in them (besides what are under a very large portion of one of them, in which there is no doubt they will be found) is estimated will supply iron-works with materials to make 400 tons of pig-iron weekly for upwards of 20 years, as well as 40,000 tons of the much and justly-celebrated Yard and Wall and Bench Coals per annum for sale, for the same period.

Printed particulars of the property, and lithographed plans of the estates, showing the minerals under them, with calculations as to the expense of making iron from them, as compared with that of manufacturing it in Staffordshire, may be had upon application at the office of the *Mining Journal*, 26, Fleet-street; and at J. Boydell's, 54, Threadneedle-street, London; and at Messrs. Longeville and Williams, solicitors, Oswestry.

Oswestry, June 6, 1849.

CAMBRIAN IRON FOUNDRY, ENGINE AND BOILER MANUFACTORY.

NEWPORT, MONMOUTHSHIRE.

ESTIMATES GIVEN for GAS and WATER-WORKS, RAILWAY, BRIDGE, and OTHER CONTRACTS, to any extent.

THOMAS EDWARDS, Proprietor.

October 1, 1849.

CWMBRAIN PATENT IRON REFINERY.—The PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWTH'S REFINED IRON, or METAL, PREPARED by a NEW PATENT PROCESS,

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scrap, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL is PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK-PLATES.

2. For TIN-PLATES, commonly called COKE-PLATES.

3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.

4. This COMPOUND PUDDLED, beat under the hammer into a bloom, rebated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-rods, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a square, and the initials "R. J. B." and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

GREAT ECONOMY—DUNN'S PATENT TRAVERSING TRUCKS, FOR REMOVING RAILWAY CARRIAGES AND WAGGONS FROM ONE LINE OF RAILS TO ANOTHER.—These TRUCKS have been examined, and approved of, by some of the most experienced engineers in this country. They have been laid down, and well tested, both in England and upon the continent; their advantages over other traversing trucks are—that there is no expensive gear attached to them, and that they leave no gap or recess in the main line—consequently, making more room at a station, and less liable to accidents or getting out of repair.

The Salford Station, in Manchester, is worked by one; the Peterborough Station, upon the Eastern Counties Railway, where 10 lines of road are in use, is worked by one; also several small stations upon the Eastern Counties Railway and other lines; there is also one of these Traverses working nine lines of road upon the Paris and Lyons Railway, and others in progress of construction at the

WINDSOR BRIDGE IRON-WORKS, NEAR MANCHESTER,

where prices and other particulars may be obtained.—A good selection of Crane Patterns, for Wharf, Warehouses, and Docks, are kept.—Double and Single Gated Crabs, Blocks, Screw Jacks, &c., always on hand, ready for delivery.

STRUVE'S PATENT MINE VENTILATOR.

Cost—£150.

TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 20,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute.

The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of six months at the Eaglesbush Colliery, near Neath, working under a rarefaction of 2½ to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSEES will be GRANTED on application to

MR. WILLIAM PRICE STRUVE, Swansea, CIVIL ENGINEERS and MINERAL SURVEYOR.

Apply to HUTCHISON & CO., 140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials used to resist frost, vermin, &c.

LICENCES GRANTED.

TO ENGINEERS AND BOILER MAKERS.—The BIRMINGHAM PATENT IRON TUBE COMPANY

MANUFACTURE

FLUCTUATIONS IN THE STOCK AND SHARE MARKET,
DURING THE MONTH OF SEPTEMBER.

Stocks and Shares.	Share.	Paid.	Pr. Sept. 1.	Highest.	Lowest.	Present.
Consols	—	—	92	93	92	92
Exchequer Bills	—	—	40s p.m.	42s p.m.	38s p.m.	41s
RAILWAYS.	Stock £100	£74	£74	70	71	71
Brighton	£20	20	25	25	25	25
Birmingham and Oxford	£20	50	20	20	14	14
Caledonian	30	30	20	20	14	14
Eastern Counties	30	20	7	8	7	7
Great Northern	30	20	7	7	7	7
Great Western	100	100	69	69	54	58
London and North-Western	Stock 100	122	122	108	113	113
Midland	Stock 100	60	61	49*	51	51
North Staffordshire	20	17	11	11	9	10
South-Eastern	£33 2 4	33 2 4	21	21	18	18
South-Western	Stock 50	33	33	32	33	33
York, Newcastle & Berwick Stock	25	18	18	16	18	18
Yorke and North Midland	50	50	23	23	20	21
Monteux and Amiens	20	20	61	61	58	58
Northern of France	20	14 8	11	11	11	11
East Indian	20	34	41	41	34	34
Great Indian Peninsula	5	5	5	5	5	5

The range of Consols has not exceeded 1 per cent., but it will be observed that in railway shares the crash has again been fearful. Great Western shares show a difference of nearly 16% between the highest and lowest quotations, and North-Western 14%, with a subsequent reaction of only 4%. In the former, and 5% in the latter. Caledonians also have gone from 20% to 14%, leaving off within a fraction of the lowest price.—Times.

* Ex div.

GEOLICAL STRATA OF THE METROPOLIS.—Within the last few days, sections of various parts of the strata of London, where borings have been made, have been distributed, for the information of persons projecting schemes for improved drainage, and also of several wells, which sections, according to a correspondent of the *Times*, are anything but correct. He refers, for instance, to the thickness of the London blue clay at Godding's Brewery, Southwark, which is stated to be 160 feet thick, when it is only 100 feet; the surface of the chalk also is indicated at a depth of 190 feet, when it is 245 feet. Another of these sections indicates the thickness of the blue clay at Merton. Thorne's Brewery, Westminster, to be 162 feet, when it is only 100 feet; and the chalk is stated to be 202 feet from the surface, when it is 230 feet. The section of Messrs. Saagar's, Millbank, showing the thickness of the blue clay, 98 feet, is correct; and, being within 100 yards of Messrs. Thorne's, proves the inaccuracy of the latter, as the surface of the blue clay is of pretty uniform and gradual dip towards the west in that portion of the metropolis. We believe this statement to be about correct, and are surprised at the display of so much ignorance or carelessness, or both, on the geology of the London basin—a subject on which the officials ought to be well informed, in so important a public department as the Commissioners of Sewers Office. Any common practical well digger could have given better information. They also state that the blue clay rests on the chalk. We would ask the geological *Solomon*, who penned this information, how long it is since the plastic clay series disappeared from above the chalk formation, and from beneath the blue clay?

JUKES'S SMOKELESS FURNACE.—We understand that Messrs. Chambers, of Edinburgh, have had one of Jukes's revolving fire-bar furnaces put to a 10-horse steam-engine, and which proves most effective in preventing that nuisance in large towns, particularly where many large manufactures are carried on—clouds of black and sooty smoke. It is said, this is the first instance of Jukes's patent furnace being used in Scotland; but, when the comfort and economy resulting from its use is more generally known, there is no doubt the example will be extensively followed.

CHRONOMETERS.—From a return obtained by Capt. Pechell, which has been printed by order of the House of Commons, it appears that the number of chronometers which the Board of Admiralty have given permission to be placed on trial at the Royal Observatory, Greenwich, during the last five years, amounts to 219, by various makers—the following of which have been purchased after the trials:—14 by Looey, 8 by Poole, 7 by Parkinson and Frodsham, 5 by C. Frodsham, 5 by Reid and Son, 4 by Birchall, 4 by E. J. Masse, 3 by Appleton, 3 by Dent, 3 by Eiffe, 3 by Hutton, 3 by Webb, 2 by Carter, 2 by Fletcher, 2 by Norris and Campbell, 2 by C. Shepherd, 1 by Baker, 1 by Connell, 1 by Clarke, 1 by Hewitt, 1 by McGregor, 1 by Lister, 1 by Muston, 1 by H. Parkinson, and 1 by W. Shepherd. It also contains copies of the reports and opinions submitted to the Board of Admiralty, by the Hydrographer and Astronomer Royal, relative to Mr. Looey's merciful compensation for chronometers.

TO REMOVE CHEMICAL MARKING INK STAINS FROM LINEN.—Nitro-muriatic acid has been recommended for this purpose, but, without entering into the obvious demerits of this agent, which is neither fitted for general use, nor suited for cambric or fine linen, Boettger proposes a concentrated solution of Liebig's cyanide of potassium as a safe and harmless means of removing the stain of marking-ink from linen textures. In the preparation of this salt, it is essential that the ferrocyanide be as free as possible from sulphate of potash, to prevent the generation of a combination with sulphur during the process of heating, which would entirely defeat the object. Names and marks on linen or wearing apparel, of many years standing, may be totally and effectually removed from the finest cambric, even without the slightest injury to its texture, by rubbing the marking gently with a rather concentrated solution of oxalate of potash. The red and black stains produced on the skin, by the solutions of the salts of silver and gold, may be perfectly removed by a solution of the above-mentioned salt. It is necessary, however, to observe, that the skin should be intact, as this salt produces ill effects if applied to open sores.

ASSURANCE OF RAILWAY PASSENGERS.—The new system of railway assurance comes into operation on the Great Western Railway between Paddington, Bristol, and intermediate stations on Monday next, and arrangements are being made for the same purpose with the other railways in the West of England.

INDIAN RIVER NAVIGATION.—A short time ago, Messrs. Allen and Co. published a pamphlet, by Mr. John Bourne, C.E., "Illustrating the practicability of opening up some thousands of miles of the river navigation of India, by the use of a new kind of steam-boat adapted to the navigation of shallow and shifting rivers." The difficulties which have sprung up in the shape of rail-waying our great eastern empire, and the anxiety existing on the score of cotton cultivation, have drawn much attention to the report of Mr. Bourne, who urges the practicability of navigating the shallowest rivers of India with steam-boats well adapted to the carrying trade. Messrs. Boulton and Watt offer to construct a description of vessel on the plan suggested by Mr. Bourne, with high-pressure engines capable of exerting 300 to 350 horses' power, and of propelling them at the rate of 15 miles an hour, with a load of 250 tons, upon a draught of only 12 inches of water. We learn that our excellent townsmen, Mr. William Fairbairn, civil engineer, has reported upon the mechanical arrangements of the steamer suggested by Mr. Bourne, and states that he considers the suggestion to contain the elements of perfect success. Mr. G. W. B. Jackson, C.E., the representative of Mr. Bourne in this country, has arrived in Manchester, with the view of calling the attention of this commercial community to the subject, and of obtaining their opinion in its favour, with a view to inducing the East India Company to afford their fostering protection to a company who have this navigation scheme in view, and to give them such privileges as they may seem to deserve. Mr. Jackson had a long interview with the directors of the Commercial Association of this town on Thursday last, and the object of his visit is to undergo further consideration by that body to-morrow.—*Manchester Examiner.*

EDEN'S FAMILY MEDICINES.—**EDEN'S HOOPING-COUGH MIXTURE.**—Has attained universal celebrity as a sure and efficacious remedy for coughs, colds, asthma, influenza, pulmonary consumption, and all affections of the throat, chest, and lungs; a positive cure for hooping-cough, and all diseases to which children are subject.—**EDEN'S PILLS** are acknowledged by all to be the safest and best medicines in the world for the cure of bilious and nervous complaints, gout, rheumatism, bowel complaints, consumption, and general debility.—**EDEN'S OINTMENT**, as a cure for scrofula, and all cutaneous eruptions of the skin stands unrivaled.—**EDEN'S FAMILY MEDICINES** are prepared only, and sold wholesale, by Eden and Co., 3, Jewin Crescent, London, and retail by most respectable chemists and patent medicine vendors in the United Kingdom, in bottles, boxes, and pots, at 1s. 1d., 2s. 9d. and 4s. 6d. each.

DAMP AND GASEOUS EXHALATIONS.—**SANATORY MEASURES.**—All MEMBERS of BOARDS OF HEALTH are especially DIRECTED to the most EFFECTIVE MEANS which they can ADOPT TO PREVENT the injurious and often FATAL EFFECTS upon the HEALTH of the COMMUNITY, arising from exhalations that are produced from moisture, decayed animal matter (as in grave-yards), stagnant water, and collections of foetid refuse, tending to produce a miasmatic state of atmosphere. In situations so effected, the imperious quality of the ASPHALTE of SEYSSEL renders it the most perfect PAVEMENT or COVERING that can be relied upon for hermetically closing, and thereby preventing the rising of moisture and escape of noxious vapours. The present extensive application of this material for covering roofs, terraces, and arches, for preventing the percolation of wet, is strong evidence of its effectiveness for the above purposes, which is further confirmed by the following extract from the Report of the Commissioners on the Fine Arts:—

"In 1839, I superintended the construction of a house of three stories on the site of Englefield. The foundation of the building is constantly in water, about 194 inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of SEYSSEL ASPHALTE, less than half an inch thick, over which coarse sand was spread.

Since the above date, no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ in. above the external surface of the soil, and only 1¾ in. at the utmost, above that of the sheet of water.

The layer of asphalt having been broken and removed, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-frames."

* This method has been adopted at the new Houses of Parliament.

I. FARRELL, Secretary.

Transactions of the British Association.

ANALYTICAL INVESTIGATIONS OF CAST-IRON, by Mr. F. C. WRIGHTSON.

This series of analyses showed the influence of the hot blast in producing the so-called "cold-short iron," by occasioning an increased reduction of phosphoric acid, and the consequent increase of phosphorus in the "hot-blast" iron. The respective per centages were:—

	1	2	3	4	5	6	7
Cold Blast	0.47	0.41	0.31	0.20	0.21	0.03	0.36
Hot Blast	0.51	0.55	0.50	0.71	0.54	0.07	0.40

The irons differed also considerably as to the state in which the carbon was contained in the hard white iron, resembling impure steel, containing nearly all its carbon in a state of chemical combination, whilst the carbon contained in the grey and mottled varieties of iron was principally contained only as a mechanical mixture. The presence of sodium and potassium in all the specimens examined was also noticed for the first time, and it was thought probable that these might materially affect the qualities of the metal.

ON COPPER CONTAINING PHOSPHORUS, WITH DETAILS OF EXPERIMENTS ON THE CORROSION ACTION OF SEA-WATER ON SOME VARIETIES OF COPPER, by DR. PERCY.—Upon analysing a specimen of copper, to which when in a state of fusion some phosphorus had been added, it was found that it contained a considerable quantity of phosphorus, and also a large portion of iron derived from an iron rod employed in stirring the mixture at each addition of the phosphorus. The copper employed was of the "best selected"—it appeared to be harder than copper treated with arsenic. The details of the analysis of 11676

grains were given, the result of which was—

Phosphorus	0.98
Iron	1.99

A second analysis gave—

Copper	55.72
Iron	2.41
Phosphorus	2.41-100.54

It has long been stated that a very small quantity of phosphorus renders copper extremely hard, and adapts it for cutting instruments—but such an alloy as that formed by Dr. Percy has not previously been formed. It is a remarkable fact, that the presence of so large a quantity of phosphorus and iron should so little affect the tenacity and malleability of the copper. The effect also of phosphorus in causing soundness in the casting of copper is interesting, and may be of practical importance. Some experiments were next described, made by Capt. James, of Portsmouth, bearing on the economic value of the alloy of phosphorus and copper. By the experiments made by Capt. James on the corrosive action of sea-water, it would appear that this compound was much less affected than most other specimens of copper tried. The results derived from exposing measured pieces of copper to the action of sea-water for nine months were as follows:—

Electrotype copper, loss per square inch	1.4 grains.
Selected copper	1.1 "
Copper containing phosphorus	0 "
Copper from the <i>Frolic</i>	1.12 "
Dockyard copper, No. 1	1.66 "
Ditto No. 2	3 "
Ditto No. 3	2.48 "
Ditto No. 4	2.33 "
Muntz's metal	.95 "

The results appear to be of sufficient importance to excite attention to the fact, and to elicit further inquiry, especially when it is remembered how important and economic a desideratum it is to the Admiralty to diminish or prevent the corrosive effect of sea-water upon copper.

REPORT ON THE OXIDATION OF RAILS IN AND OUT OF USE, DETERMINING THE LOSS BY ABRASION, by MR. R. MALLETT.—The conclusions at which Mr. Mallett has arrived are the following:—The top surface of a railway bar in use is constantly preserved in a state of perfect cleanliness, freedom from oxidation, and polish; while the remainder of the bar is rough-coated originally with black oxide, and soon after with red rust (peroxide and basic salts). Not only is every metal electro-positive to its own oxides, but, as established in the second report on the action of air and water on iron, the polished portion of a mass of metal partially polished and partially rough, is primarily corroded on the rough portion. Hence a railway bar while in use is constantly preserved from rusting by the presence of its polished top surface. Such polished surface has no existence on the rail out of use. The upper surface of the rail in use is rapidly condensed and hardened by the rolling of the traffic over it, and it is also shown in the above report that, all other circumstances being the same, the rate of corrosion of any iron depends upon its density, and is less in proportion as this is rendered greater by mechanical means. As every metal is positive to its own oxides, the adherent coat of rust upon iron, while it remains, powerfully promotes the corrosion of the metal beneath, and this in a greater degree in proportion as the rust adherent is of greater antiquity. It has been shown that the rust produced by air and water, which at first contains but little peroxide, continues to change slowly, and becoming more and more peroxidized, becomes more and more electro-negative to its own base. Now, the rust upon a railway bar out of use continues always to adhere to it, and thus to promote and accelerate its corrosion; while the rust formed upon a railway bar in use is perpetually shaken off by vibration, and thus this source of increased chemical action removed. To recapitulate, railway bars forming part of a long line, whether in or out of use, corrode less for equal surfaces than a short piece of the same iron similarly exposed. Rails in use do corrode less than those out of use. This difference is constantly decreasing with the lapse of time. The absolute amount of corrosion is a source of destruction of the rail greatly inferior to that due to traffic. It is highly probable that the electrical and magnetic forces developed in the rails by terrestrial magnetism, and by rolling traffic, re-ac in some way upon the chemical forces concerned in their corrosion; and that, therefore, the direction of lines of railway in azimuth is not wholly indifferent as respects the question of the durability of rails. The author concludes with two practical suggestions, deducible from the information obtained:—1. Of whatever quality iron rails are rolled, that they should be subjected, prior to use, to a uniform course of hammer-hardening all over the top surface and sides of the rails—and 2. That all railway bars, before being laid down, should, after being gauged and straightened, be heated to about 400° Fahrenheit, and then coated with boiled coal-tar. This has been proved to last more than four years, as a coating perfectly impervious to corrosive action, while constantly exposed to traffic.

ON A CONTINUED SPONTANEOUS EVOLUTION OF GAS, AT THE VILLAGE OF CHARLEMONT, STAFFORDSHIRE, by MR. S. S. HOWARD.—In a field by the side of a lane near the village of Charlemont in Staffordshire, certain patches of ground had been noticed which, without any apparent cause, were destitute of vegetation. They excited little attention, as they were supposed to be what are commonly called fairy rings; and it was not till the summer of 1846 that their true character was discovered. The person who first paid particular attention to the cause of these barren spots, was the tenant of a neighbouring cottage (at which there is a cold bath, noted in the vicinity for its medicinal properties). From certain circumstances he was led to believe that something permeated the earth in those spots, and having dug a hole, he inserted a gas-pipe, and on applying a light to the mouth of the pipe, he found to his great surprise that a large flame issued from it. It was not long before he conceived the idea of applying it to domestic purposes; and, in pursuing his experiments, he found that it was not necessary to convey it from the place where it was first discovered, at a distance of about 150 yards from his house, as on driving a pipe some inches into the ground under the floor of the cottage, he procured a continuous flow of gas. There are at the present time seven burners in the cottage, which enable the owners to dispense with fire and candles. The next cottage is supplied with two. It appears to make no difference to the supply of gas if allowed to burn for weeks together, and the flame is always of the same colour. In windy weather the flame is generally unsteady; when there is a blast of wind outside, the flames of gas rise several inches, but as each blast dies away they return to their original size. The escape of gas is larger in wet weather than in dry; but whether the gas is produced near the surface or otherwise has not yet been satisfactorily ascertained. The place where it issues from the earth is quite a mile from any coal-pit, and is outside the eastern edge of the Staffordshire coal-basin. The gas, as analyzed by myself from a portion of it (procured for me by Mr. S. Lloyd, jun., of Wednesbury, about three miles from the place), was composed principally of light carbureted hydrogen. In 1000 volumes of the gas, as it rises, I procure 996 volumes of light carbureted hydrogen, three of carbonic acid, and one of aqueous vapour and nitrogen. Its specific gravity is .56126. Its composition is somewhat different from the gas known as marsh gas, and from that which collects in the old workings of mines, as it contains less carbonic acid, and less nitrogen. The proportions in marsh gas of the former being 1-20th, and of the latter, 1-15th to 1-20th, whereas in this gas the proportions are only 3-1000ths, and 1-1000th. It burns with a pale bluish-white flame, emitting considerable light and heat. Mixed with atmospheric air or oxygen it explodes with considerable violence on contact with flame or with the electric spark. As it issues from the pipe it has a moist or slightly musty smell, asof sticks partially decomposed; but after keeping for some time in stopped glass jar, this is lost, and it becomes perfectly odorless. When inhaled in large quantities, it produces the same effects as hydrogen gas, but it does not appear to exert any evil influence on the health of the inhabitants of the cottage when diluted with a large portion of atmospheric air.—Mr. BLACKWELL, of Dudley, showed that a series of faults converged to the area of this singular evolution of gas, and suggested that probably it was through these that this carbureted hydrogen was discharged from the extensive carboniferous deposits of the neighbourhood.

ON MOTIONS EXHIBITED BY METALS UNDER THE INFLUENCE OF MAGNETIC AND DIA-MAGNETIC FORCES, by W. S. WARD.—In the course of a series

of experiments in relation to dia-magnetism, I observed that the nature of the action upon many metals varied with the intensity of the magnetic force, and I found that such effects were in accordance with the observations of Professor Plücker, "that the dia-magnetic force increases more rapidly than the magnetic in relation to the power of the exciting magnet." I took considerable care in procuring specimens of pure silver, copper, lead, tin, and zinc, and found that these assumed the magnetic or dia-magnetic state according to the power of the magnet employed. I found a magnet of very moderate size and power sufficient, if the polar pieces were brought near to each other, and the metals, the subject of experiment, were in small discs, and delicately suspended. My attention being particularly directed to the phenomenon which Dr. Faraday terms revolution, I observed that the direction of the revulsive motions changed when the magnetic or dia-magnetic state of the metal was changed. When the polar pieces were adjusted within one quarter of an inch apart, and the disc of metal so suspended that one-half was without and the other half between the polar pieces, another series of phenomena presented themselves. On developing the magnetic force the disc moves as a pendulum, with a tendency to pass outwards from between the polar pieces; on breaking contact the disc moved in the reverse direction, tending to pass within the pieces. Such motions are remarkable in that the direction of them is alike in all metals. Such motions appear to result from electrical currents rather than from magnetic or dia-magnetic forces, for on substituting for the disc of metal a spiral of insulated wire, they were not produced, but on using a similar spiral, but of which the ends of wire were in good contact, the like phenomena were observed with a disc.

ON A THEORY OF INDUCED ELECTRIC CURRENTS SUGGESTED BY DIA-MAGNETIC PHENOMENA, by W. S. WARD.—The phenomena mentioned in the foregoing paper involve many points which cannot be easily accounted for according to the received theories of magnetism. Ampère's theory may account for magnetic or dia-magnetic phenomena taken separately, but not easily for the changes of condition which take place in the same metal, still less for the changes in the direction of

IMPROVED PICK.—The design of this invention is to obviate the complaint among stone-cutters and cleavers, that their work being generally at a distance from a smithy, they are not able to obtain sharp tools as often as they want them, unless they waste much time in getting them sharpened; and if they carry with them, in the morning, a sufficient number of tools to serve for the whole day, they are seriously inconvenienced by the weight, the picks alone frequently weighing from 40 to 50 lbs. These inconveniences are obviated by the use of the improved pick, inasmuch as six sharp points of about 1 lb. each suffice for a whole day. The bodies of the picks, having scarcely any wear, are exceedingly durable, and not liable to get out of repair. The points are of cast-steel, which is stated to be much better for granite, or any other hard rock, than blister-steel, the kind generally used. The points are held firm by putting a thin piece of leather, or other material, on two of the sides of the recess, and are got out from behind by driving a small steel key. The cost of these points is not half so much as that of common picks, to do the same work per day.

IMPROVED SAFETY-VALVE.—The purpose of this invention is to obviate the inconvenience experienced from the sticking of the safety-valve to the seating, and also to prevent explosion from the falling of the surface of the water in the boiler below the top of the tube. The sticking of the safety-valve to its seating is caused by the weight of the atmosphere acting upon it; when, from any cause, the steam in the boiler has been suffered to get low, its adhesion is frequently so close as to allow of its being moved with difficulty by a lever.

When this is observed by the engine-man, the steam being unable to find a vent, increases until the pressure is raised to a dangerous extent, and unless attention is attracted by an unusual speed in the working of the engine, sometimes terminates in the bursting of the boiler. To prevent this, there are two valves made in the top of the boiler of unequal areas, the smaller opening downwards into it, and the larger upwards, as in the ordinary safety valves. These are connected to each other by a lever, with equal arms placed between them, so that the raising of one causes an equal depression of the other, and the reverse. On the steam being raised in the boiler, the valves will react on each other; but that which opens upward, on account of its greater area, will overcome the pressure on the other, and forcing it down, will permit the escape of the steam from both orifices, until its excess of surface is loaded to the necessary degree, the weight required, which will be very small. Should the pressure of the steam get below that of the atmosphere, the latter acting on both valves will cause a similar compensation to take place on the outside, and its force exerted only on the difference of their surfaces (which should be very little) will be insufficient to produce this inconvenience. From the inside of the smaller valve is hung a float, by means of a copper chain of sufficient weight when depending from it to overcome the valve on the opposite end of the lever, and lift it together with its loading off its seat. The length of the chain is so adjusted, that while the float remains on the water above the upper part of the tube, it hangs loosely; but on the former sinking below, the chain is brought to its full stretch, and the float acting on the valve opens it, and lets off the steam, thus removing all chance of the occurrence of those dangerous explosions of which this is the fertile source. The invention was by T. Sampson of Hayle.

METHOD OF REGULATING THE FLOW OF THE INJECTION WATER INTO THE CONDENSER APPLICABLE PRINCIPALLY TO MARINE ENGINES, by Mr. G. J. CUNNACK.

The injection water is at present the general practice, being allowed to flow into the condenser in an uninterrupted stream, and requiring the constant attention of the engineer, so as to proportion the quantity of injection to the bulk of steam proceeding from the engine. This latter must be subject to great variation, particularly in the case of marine engines, when the paddles are exposed to the action of a heavy sea, which at times almost brings them to a stand-still; and as the injection water still flows, the air-pumps become subjected to a severe strain, resulting from the partial choking, produced by the excess of water. On the other hand, should the speed of the engines become accelerated, and the injection remains unaltered, a loss of power must ensue from imperfect condensation. The manner in which it is proposed to remedy these irregularities, is by causing the difference of pressure in the conductor to act as a throttle-valve in the injection pipe, similar in construction and effect to the one in the steam pipe connected with the governor in land-engines. A small cylinder, of any requisite diameter, open at the bottom to the condenser, and at the top to the atmosphere, fitted with a piston, the rod of which is connected by means of levers, on the one side with a balance, or spring, and on the other with the governing lever of the throttle-valve in the injection pipe. The lower end of the cylinder being open to the condenser, the piston will be subjected to the pressure arising from the vapour within it, this being usually computed at 5 lbs. per square inch; the atmosphere acting on the top of the piston with a force of 15 lbs. to the inch, would leave a force tending to depress it in the cylinder of 10 lbs. A weight, acting by means of the long lever, is so arranged, as to compensate for this difference, and keep the piston in equilibrium, so long as the pressure in the condenser remains at the proper point—viz.: 5 lbs. to the square inch. Supposing that, from an insufficient supply of injection water, this pressure should be exceeded, the piston will rise, and lifting with it the end of the lever connected with the throttle-valve in the injection pipe, will increase the flow of water, and produce the required effect of more perfectly condensing the exhaust steam. On the other hand, should the flow become too great, so as to carry the amount of rarefaction too far, the piston would be depressed from the preponderance of atmospheric pressure, and the action on the throttle-valve would be reversed, so as to diminish the quantity of water flowing through it. The piston not being exposed to the action of heat, can be easily kept air-tight by a packing of soft leather; and, if necessary, a small quantity of oil kept on the top of it would be an additional security against leakage. There is a spring in the cylinder to prevent the too sudden rise of the piston, and ensure its gradual action on the throttle-valve of the injection pipe. The latter valve is supposed to be placed between the injection cock and the condenser.

ON THE MEANS OF PREVENTING THE CORROSION OF STEAM BOILERS.—Mr. J. Williams, Helston, proposes to prevent the corrosive action of water by placing over the whole of the inside of boilers a thin coat of varnish of such a nature, that, while it would remain unaffected by the high temperature to which it would be exposed, it should offer no serious resistance to the regular transmission of heat from the iron to the water. To effect this, he proposes to pour a small quantity of coal-tar into the water, immediately before the steam is about to be got up. This substance possesses the singular property, when thrown into boiling water, of parting with its volatile portions, and diffusing the remainder of its substance as a hard insoluble pitch all over the interior of the vessel, effectually preventing a sufficiently close contact between the water and sides to allow of chemical action, while it is so superficial as not to impair the efficiency of the boiler by lessening the conducting power of its surface.

MODEL OF APPOLD'S CENTRIFUGAL PUMP FOR DRAINING MARSHES, &c.—

This model of a centrifugal pump will discharge 10 gallons of water per minute, and is only 1 in. diameter. One of the same shape, 12 in. diameter, will discharge at the same speed of the outside circumference, or 1-12th the number of revolutions, 1440 gallons per minute, being according to the square of the diameter, and not according to the cubic contents. From various experiments, it has been found that the larger model with the curved vanes does the most duty, on account of its receiving and delivering the water more quickly; it will discharge 1800 gallons per minute, with 607 revolutions, but does the most duty at 685 revolutions, discharging 1400 gallons; therefore, if a pump, 1 inch diameter, raises 10 gallons, and another, 1 foot diameter, 1440 gallons, it follows that one 10 ft. diameter of the best shape, will pump 140,000 per minute; of 20 feet diameter, 560,000; and of 40 feet diameter, 2,240,000 gallons per minute. To do the above duty, the circumference of the 20 ft. pump would be required to travel 560 yards per minute, which would be only 53 $\frac{1}{2}$ revolutions, and the 40 ft., 264. From the results of various experiments, it has been found that the loss of power would not be more than 25 per cent. It will be observed, the centrifugal force is not so much in the large diameter, on account of the water moving more in a straight line; but that is compensated for by the force being applied to a greater depth of water, being 10 ft. in the 40 ft., and only 3 in. in the 1 ft. With the 1 ft., 159 revolutions will raise the water 1 ft. high without discharging any; 318 revolutions, 4 ft. high; 636 ditto, 16 ft. high; 1272 ditto, 64 ft. high. The highest elevation to which the water has been raised with the 1 ft. pump is 67 ft. 8 in., 1322 revolutions per minute, being less than the calculated height, which may be accounted for by leakage with the extra strain; while the 1 ft. pump is raising 8 tons of water 5 ft. 6 in. in height per minute, there is no greater strain on any part of the pump than 160 lbs. on the 6-in. drum, which is equal to a leverage of 3 in. It will pass almost anything that is small enough to go through, there being no valves. A quantity of nut-galls, about half a gallon, were thrown into the 1-ft. pump all at once, when it was at full speed, and they passed through without breaking one. [This machine was fully noticed and illustrated in the *Mining Journal* of Nov. 11, 1848.]

SAW-SETTER, by JOHN HARRIS, carpenter, Camborne.—This instrument is designed to give to saws the requisite "way" for clearing through the wood in cutting. A punch is kept up by a spring acting on the bottom of it. The saw is placed with one tooth on the anvil; the punch is then struck with a hammer, and thus indents the tooth. It is then moved two teeth farther on, and so on, stamping each alternate tooth, and the like operation repeated on the other side, renders the work complete. The principle is applicable to different sizes by merely shifting the anvil, and changing the punch.

MODEL OF AN IMPROVED ANGLE-IRON PRESS.—This press is adapted for turning angle-iron for steam-boats, boilers, and wrought-iron pumps, and is invented by W. Burrall, Hayle Foundry. The advantages of it are the keeping the angle-iron perfectly true whilst being turned, preventing its opening in the angle-lengthways, and dispatching, at least, 12 times the amount of work in the given period.

IMPROVED AIR-PUMP, by THOMAS BICKLE, Hayle Foundry.—In ordinary air-pumps, where the valves are acted on by the elasticity of the air, there is a limit to the amount of exhaustion to be produced by them, because when the air in the receiver becomes attenuated to such a degree as to be insufficient to open the valves, no further exhaustion can take place. The air-pump invented by Mr. Bickle is designed to obviate this imperfection, and is constructed on such a principle, that supposing the workmanship to be good, and the joints tight, there is (the inventor states) no limit to the amount of exhaustion to be obtained by its use. The description of the air-pump would scarcely be intelligible without the working model; but the main peculiarity is, that there is no valve between the receiver and the cylinder.

IMPROVED BAR COMPASS, by C. F. BELLows.—This instrument possesses a self-adjusting graduation, by which it may be set without the usual application of rules, &c. It is capable of striking a circle of more than 20 in. diameter, and possesses the advantage of always keeping the points perpendicular, which is not the case with common compasses. There is a centre point for striking a circle round a hole with precision. The instrument can be adapted to various purposes, as the head will receive pencils or steel points for marking metal, or knives for cutting leather washers.

DIVIDING-ENGINE, by ALFRED PHILLIPS, of Camborne.—A large circular plate in the centre is divided into 720 half degrees (one to each tooth), and a small bevel-edge plate on the end of the screw, by which the plate is turned, is divided into minutes. To mark a degree in the work to be divided, two turns of the screw are requisite for one degree, one turn for a half degree, and one sixtieth for a minute, as shown by an index on the edge. The flat side (an invention by Mr. Phillips) is worked by a rack underneath, which engages in the teeth of the circular plate. This slide enables us to divide scales, rules, and other straight work; whilst the circular plate is for protractors, or any curves or arcs, being designed for the circle only. There are tightening screws, or nuts, which act on the bearings of the dividing screw, by means of which the working parts are constantly kept in truth, notwithstanding the wear to which they are subject.—*West Briton.*

FOREIGN INTELLIGENCE.

CALIFORNIA.—By the arrival of the *Medway*, Royal Mail steamer, we have intelligence from California a fortnight later than that received *via* New York. The American steamer, *Empire City*, sailed from Chagres for New York, having 50 passengers from California, and gold-dust from San Francisco, said to the amount of \$1,000,000. She had taken out 200 passengers for California, and 400 were waiting at Panama for passage to San Francisco. Every ticket by return steamer had been purchased at \$300. The steamer, *California*, arrived at Panama on the 25th August, in 21 days, from San Francisco, bringing 51 passengers and about \$500,000 in gold. Considerable alarm had prevailed in San Francisco, in consequence of a riot which had taken place on the 16th of July. Seventeen men were arrested, and tried before the Alcalde and two gentlemen selected by the people, on charges of robbery and attempts to commit murder; the ringleaders were convicted, and sentenced to hard labour in penitentiary as the Governor may direct, with fines of \$250 to \$1000 each. The accounts from the diggings are to the 22d July. Provisions were plentiful in the mines, and dry goods could be obtained in Sacramento at San Francisco prices. Very rich deposits of gold have been found on the north fork of the American river. The daily average per man was about an ounce of gold. The general health remained good. The only article of commerce which maintains a high price is timber, which obtains \$800 per 1000 ft. Gold-dust continued to come in, but not in sufficient abundance as to reduce the price; it was worth \$15 per oz. in exchange for specie, but circulates at \$16. The correspondent of the *Times* states that a great over-supply of merchandise still existed, and was continuing to increase by fresh arrivals until the markets were glutted. He further says—"The price of land for house and warehouse sites continues enormously high, and rather increasing than otherwise. Rents keep high in proportion. The town is increasing rapidly, houses springing up like mushrooms. A few years, at the present rate of progression, and San Francisco will be the largest city on the Pacific. Already its port numbers a larger fleet of merchant vessels than any other port this side Cape Horn. The expense of living is enormous, there being nothing like it in the world. From the *El Dorado* of this country, the recent reports continue to confirm the previously-formed opinion, that the quantity of gold is incalculably great; its existence over a vast tract of country, extending for several hundreds of miles, being fully established by travellers of credibility who have lately made journeys in the interior. I have conversed with several gentlemen, some of whom I have known in other parts of the world for years, just returned from the gold regions, and must believe their reports on the subject. They all agree in assigning to the country vast, if not inexhaustible, wealth in gold." Some unusually large specimens of gold have been brought to San Francisco; one large lump, weighing 144 lbs. troy, is said to have been purchased by the house of Barron, Forbes, and Co. for \$3560, as a present to the Queen. It is an irregular slab, one side of which is pure gold, and the other quartz, weighing about one-third of the whole, streaked with veins of gold; it is 6 $\frac{1}{2}$ in. long, and 5 $\frac{1}{2}$ in. broad. Another specimen, weighing 7 lbs. 10 ozs., was raffled for \$1500. These large specimens obtain more than their intrinsic value as curiosities. The total number of men employed in gold-seeking were estimated at 25,000. The want of judicial authority had been so seriously felt, that a municipality was to be appointed, to be composed of respectable citizens, disposed and determined to preserve order, and the election was to take place on the 1st August. A corps of volunteers was also being formed, to preserve some degree of security against the outrages of the mobs of suspicious characters, who are flocking in from all quarters. A great deal of indisposition prevailed, arising from the effects of the variableness of the climate, which is the most disagreeable on earth. The mornings are generally foggy, the afternoons frequently hot, and always windy, and the nights bitterly cold in the height of summer. Dysentery is very common, from which complaint some deaths have taken place. Pulmonary complaints are also common, and persons arriving at San Francisco from the interior, which is very hot, are very subject to both dysentery and pulmonary complaints, arising from the great change of climate.

We extract the following particulars from the *Times* of yesterday.—

"The last accounts from California indicate that all the parties now engaged in mining will have opportunities of retaining the produce of their labour, and of returning home with considerable savings. The average yield is uniformly spoken of as an ounce per day, and as provisions and clothing are at present cheaper at San Francisco than in England, there is nothing to prevent those who may preserve their health, and escape plunder from leaving with a handsome balance. The number now estimated at the mines appears to be 25,000, and, consequently, the monthly produce ought to be between 2,000,000, and 3,000,000 sterl. Making allowance for exaggeration, and also for the probability that this rate of produce can only be obtained during a few months of the year, it is sufficiently large to lead to the supposition that distinct effects will be observed when the season closes, and the miners return to San Francisco. It must be borne in mind, also, that the present number of workers will be largely augmented every month. In July alone no less than 3614 persons arrived at the port, of whom about 3000 were Americans, to say nothing of the influx by the overland route, and it is known that the main portion of the best class of emigrants are yet on their way from New York and the New England States, *via* Cape Horn. It is further to be recollect that, although it may be well to allow for exaggeration as to the quantities of gold obtained, it has not yet been proved in a single instance that the general accounts received from California have been otherwise than correct. If exaggeration exist on any point, it is most likely to be with regard to the numbers engaged, since all estimates of a scattered population are usually found, even when there is no intention to deceive, to be greatly beyond the actual total. At the same time the emigration of which we have had accounts would seem to warrant the expectation that the body of persons at the mines can hardly be less than what has been stated."

"The following extracts of a letter from San Francisco will prove interesting, as it conveys a new fact regarding the prolific nature of the general soil of the country, and also an account of the climate of the Bay, different from the usual representations. It is from a son of one of the most influential and upright of the public men of the United States, and is of a later date than any other advertisement, having been posted at the last moment before the departure of the mail:—

"While I was walking towards the Post-office yesterday, I saw people kneeling down in the streets, employing their leisure time scraping gold out of the dust with their jack-knives. Twenty or thirty men and boys, who had no other employment, were each getting as much gold out of the very dust of the streets (not gold which had been accidentally scattered there, but the true gold of the soil), in the course of an hour or two, as a man could earn at home in a day. I find the climate here all my fancy painted it, and more. There is a sort of life-giving, energy-imparting, air about the Bay of San Francisco that you can scarcely conceive. I have now been here nearly a month, living constantly out of doors, and sleeping half the time without any shelter whatever. At home you would call this great exposure, severe hardship. True enough it makes one appear rough and bold; but I think it gives a foundation for a constitution that no other life can. I have not been idle a day. My first movement was to buy a boat, and go to work getting my necessities ashore; and, after I had pitched my tent, I pursued the occupation of boating, getting more gold than my expenses amounted to. I have taken a trip up the Rio Sacramento, and carried up several passengers. I made it answer the double purpose of a small profit, and of satisfying myself at the same time that the glorious valley of the Sacramento was no place for me to live in. The land abounds with trees, and the river banks are shrouded in a luxuriant growth of vines and shrubs. Salmon abounds in the river, ducks upon its surface, deer upon its banks, and there are a thousand other things which, combined, form a beautiful picture. But it has its shadows. The air seemed to me to be confined, and loaded with an odour of decayed vegetable matter. We could scarcely go on shore on account of the mosquitoes, and the sun blazed down so fiercely as to peel the skin from our faces. Dysentery prevails, and one of our party nearly died from it."

Direct intelligence has been received from Melbourne to the 2d June, and by the same opportunity the accounts from Van Diemen's Land extend to the 23d May. We hear nothing further from Melbourne on the subject of the recently reported gold discoveries in the Pyrenees. In business everything was quiet.

SOUTH AUSTRALIA.—Advices from Adelaide, to the 28th May, have been received. The Custom-house returns, for the first quarter of the present year, show a progressive increase in the export of products of the colony. The total exports amount to 158,357l.—of which 77,578l. were in wool, 57,517l. in copper ore, 5813l. in tallow, 8884l. in wheat, 2097l. in flour, and the balance made up principally of provisions. The total imports consumed in the colony for the same period were 130,332l.—thus giving a balance of 23,025l. in favour of exports. The total quarter's arrival of emigrants had been 2430 men, 1167 women, and 1091 children; and the total departures 517 individuals. The following vessels had arrived from England:—The *Stebonheath*, with 273 free emigrants, last from Plymouth, 31st January; the *Ancient Briton*, from Newport, 22d December, with one passenger; and the *William Hyde*, from Plymouth, 28th January, with 104 passengers; the emigrant ship, *Susannah*, 514 tons, with nine cabin and 216 steerage passengers, as also the brig, *Sarepta*, 330 tons from Swansea, with cargo and one passenger; the *Susannah* had a fine passage of 101 days from Plymouth, during which three deaths and three births occurred. Mr. J. W. Parker, the manager of the Adelaide City and Port Railway Company, formed in London, with Mr. Cartwright Hill, the engineer, had reached their destination, and operations would be forthwith commenced under their superintendence. To carry out a similar undertaking, another company was formed at Adelaide; and in order to avoid a clashing of rival interests, so fatal to all undertakings of the kind, a junction of the two companies is proposed, and it is to be hoped will be carried out. The receipts of the proposed railway, it is estimated, will amount to 15,000l. per annum, which, after allowing 40 per cent. for working and other expenses, will leave 9000l. to be divided amongst the shareholders. Burra Burra mining shares, after fluctuating between 157 and 166, steadily maintained the latter quotation. *Adelaide*, 11. 10s.; *Belvidere*, 5. 5s.; *Enterprise*, 4. 15s.; *North Karunda*, 17. 8s.; *Mount Remarkable*, 10. 10s.; *Port Lincoln*, 5. 5s.; *Princess Royal*, 21l.; *Provencial* (3d paid), 9s.; *Royal Mining Company*, 7s.; *Wheat Gawler*, 17l.; *Wheat Granger*, 7. 10s. No further mineral discoveries of importance had been made in the settlement.

The *Port Philip Argus* says—"The gold-finding affair in Australia Felix is as much a reality as the famous Burra Burra. Respecting the Port Philip gold field, Mr. P. Roberts, of Asgrovre, Van Diemen's Land, writes in the following terms to the *Lancaster Examiner*:—"From communications, I have no doubt of the existence of perhaps the *richest gold mine in the world* at Port Philip. It at present appears to be a diluvial deposit, aided by an upheaving of the earth. How long this gold mine has existed it would be folly to surmise; but the lapse of ages must have occurred since the formation of the Pyrenees, and it follows that the washings of the mountains must have caused, at the foot of the mountains, very considerable deposits. I believe the gold at California was discovered by the cutting of a mill-dam by a gentleman named Sutter; and I have been told on good authority, that the gold deposits at California are 7 or 8 ft. from the surface; and it is said the whole surface is diluvial. Will it, therefore, not be wise in some of the settlers, living at the foot of the Pyrenees, to bore to the depth of 10 or 20 ft. Why should not Port Philip have gold beds as extensive as California, since gold has been found in pieces as large as from 1 to 14 $\frac{1}{2}$ oz.? I copy this letter from a gentleman, who says he has had the pieces in his hand, and that one individual had procured as much as 8 lbs." The exploration of a coal vein at Lantit Bay continued to attract attention, and exploring parties were on the spot. As a speculative investment, the district was regarded with some consideration. Although the Government had not yet published any official confirmation of the intelligence, the fact of the existence of the mineral is strongly asserted.

MANUFACTURE AND APPLICATION OF GAS.

[Specification of patent granted to Stephen White, of Victoria-place, Bury-new-road, Manchester, gas engineer, for improvements in the manufacture of gases, and in the application thereof to the purposes of heating and consuming smoke; also improvements in furnaces for economising heat, and in apparatus for the consumption of gas, dated March 26, 1849.]—*Mechanics' Magazine*.

This invention relates principally to the construction and arrangement of apparatus for the production of what is termed water gas, and which was the subject of a former patent granted to Mr. White. This gas is composed of a combination of carburetted hydrogen gas, with hydrogen gas and oxide of carbon gas—the result of the decomposition of water by contact with charcoal, coke, or anthracite coal, mixed with small particles of iron or lime, heated to a high temperature.

The apparatus first specified is constructed of a material capable of bearing the greatest heat that can be obtained (white red), and consists of two vertical retorts placed in an oven over a furnace. Inside each retort there is a flue which communicates at bottom with the furnace, and at top with the oven. The products of combustion ascend the flues, and pass into the oven, so that the retorts and their contents are heated both inside and outside. They are filled with small pieces of charcoal, coke, or anthracite coal, and thin plates of iron or pieces of thin iron wire, and their covers at top, by which these materials are introduced, lit, and securely fastened down, so as to render them perfectly gas-tight. Water is caused to fall in a succession of drops, or in a small stream, into siphon pipes, which conduct it on to the top of the materials through which the gas thus generated descends to the bottom of the retorts, whence it escapes into horizontal retorts (also placed in the oven), and there meets and mingle with carburetted hydrogen gas, which is generated in the following manner:—A quantity of resin and oil, or tar or fat, or other substance rich in carbon and olefiant gas, is melted in a vessel, fixed on the top of the oven, and allowed to flow in a liquid state into the horizontal retorts, which are each divided into two or more compartments, by horizontal partitions extending nearly to the end. These compartments are filled with copper or iron chains, or pieces of wire twisted into a spiral form, so as to offer a heated and partial resistance to the passage of the gas to the hydraulic main. When pit coal is employed instead of resin, as the hydrocarbon, it is placed in the horizontal retorts, and the employment of the other parts of this branch of the apparatus dispensed with, care being taken to allow sufficient passage for the gas resulting from the decomposition of water, to mix with the bi-carburetted hydrogen gas produced by the distillation of coal.

The chains are to be occasionally taken out of the horizontal retorts, for the purpose of freeing them from the carbon which may adhere to them. The proportion of iron to coke in the vertical retorts should be as 1:6, and the quantity of materials in the vertical and horizontal retorts should be so regulated with regard to one another that the proportions between the volume of the gas evolved by the decomposition of water, and that of the gas resulting from the distillation of coal, may be as 4:6. The gas should be tested in its passage to the gasometer by a test-burner; and if it burns with a bright smoky flame, more water should be supplied

THE MINING JOURNAL

THE ASTURIAN MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR.—The affairs of this company have been lately brought so prominently before the public that it may interest many of your readers if you will permit me to give a short general description of their property. If I thought that the miners in the Asturias were destined to be nothing more than a matter of comic speculation, I should not trouble you on the subject; but, believing as I do that they are capable of an extensive development as to cause (as has been the case in Wales, which in many respects resembles the principality of the Asturias) an entire change in the social condition and importance of that country, I cannot but regard them as being of much more general interest. The property of the Asturian Mining Company is situated in the most northerly part of the extensive mineral basin of the north of Spain, and their coal mines are the nearest of any to the sea-coast on the Rivers Nalon and Caudal, which, after running through the richest parts of the coal-field for a distance of from 20 to 30 miles, combine their waters at Barco de Soto, a mile or two below the northern limit of the mineral basin. At Tudela, on the banks of the River Nalon, the company have a grant from the Spanish Government of about 450 acres of land, the highest parts of which are about 1400 ft. above the level of the river; the strata lies, as in Wales, at an angle of 30° to 40°, and the hills are literally brimful of coal. At Mieres, on the River Caudal, they have, I believe, about 800 acres of equally rich coal land; and here are situated the iron-works, of which the only complaint is, that they have been too expensively constructed. A cross-ditch at this point, which was commenced five years ago, will, in a distance of 1700 yards, cut through 30 workable seams of coal, many of which have been traced throughout the distance of 6 miles from Mieres to Tudela. Taking a mean height of 300 yards for the range of hills lying between Tudela and Mieres, the number of seams of coal at 30, and the average thickness 4 ft., the quantity of coal above the level of the rivers between these two points would be upwards of 120,000,000 tons. The working of this amount of coal would cause a distribution of 15,000,000 among the labourers who extract it; and, if one-half of it were used in the manufacture of iron, it would cause the circulation in the country of 120,000,000. This district is, moreover, not more than 1-20th part of the whole coal-field. Iron ore of all qualities is also found in the surrounding mountains. It is, therefore, an undoubted fact, that the Asturian mineral field contains more coal and iron than can possibly be consumed by all Spain for centuries to come; and it is only requisite that the means of transport should be rendered less costly than they are at present for a large commerce to be established with the manufacturing provinces of the south. When it is remembered that, 60 years ago, the means of transport in Wales were precisely similar to those in the Asturias at the present day, and that by gradually increasing the facilities of transport—first, by canals, and then by railways—the exports from the former, of coal and iron, have increased from an annual value of a few thousand pounds to the extraordinary amount of nearly 5,000,000^l, in the year 1846—viz.: 500,000 tons of iron and 1,300,000 tons of coal. In the year 1848, it was estimated by Mr. Booker, at a meeting of the Cardiff Chamber of Commerce, that the annual consumption in the works, collieries, and districts connected with Cardiff alone, amounted to 1,000,000^l sterling, half of which was earned by the miners and workers in iron. I cannot but conclude that, with proper management, the principality of the Asturias may, in the course of a few years, be raised to a position of far greater importance than that at present held by any province of Spain; and it will be a subject of proud consideration if, by taking the initiative in Asturia, Englishmen can boast that they have kindled a spirit of enterprise in Spain, which shall eventually restore that once-powerful country to its natural position in the scale of nations. And it is certain that they will, at the same time, have greatly benefitted English interests, if we use that term in its more comprehensive sense; for although at present it is English coal and iron which supplies the limited wants of manufacturing Spain (notwithstanding the very high import duty imposed), and although it is necessary for the prosperity of Asturian mining enterprise that the produce of these Spanish mines should supersede all other like produce in Spain, yet, on the whole, the increased demand in that country for English labour and machinery, and the augmented market for English manufactures consequent on the employment of the people and circulation of capital, combined with the greater political influence which would certainly be acquired by the more frequent intercourse between the two nations, will fully compensate for the loss that would ensue to the Newcastle coal merchants. Let us, however, bear in mind that it is not by lamentations over past misfortunes, and that false economy which, at a moment when ruin is imminent, begets every possible further expenditure, because the company *has been extravagant*, that any great results can be attained. I rejoice to see that the Committee of Investigation, whilst it has wisely determined to keep the company clear of all dependency upon, or association with, irresponsible and unknown foreigners, has boldly asserted the necessity of a further call being made on the shareholders to extricate the company from its present difficulties. Whatever may have been the mismanagement so generally attributed to the directors (and I believe none of the present directors are charged with more than that), they were not unreasonable in supposing that a railway would be made by some one of the different companies which were formed for that purpose; and much of their embarrassment has arisen from the non-fulfilment of their hopes; for, with the exception of the little coal required in the iron-works, and the comparatively insignificant mines of Santo Firme—the coal mines whilst they are a constant expense to the company—are at present entirely unproductive, the cost of carriage to the sea being such as to preclude the possibility of exporting any coal; whilst, at the same time, it materially diminishes the profits that might be made on the produce of the iron-works. At present, the lowest price paid for carriage from Mieres to Gijon (*l.* per ton) would, if the company made only 100 tons of iron per week, amount to 5200^l. per annum, or 20 per cent. on the present value (quoted Sept. 29, 27. 10s.) of the stock.

But, now that it appears impossible that the necessary capital for a railway can be raised, the most important consideration is, whether some other means of conveyance cannot be devised, not requiring a great expenditure of money. In Wales, and elsewhere, the first means adopted for transport has always been by water-carriage; and, if the position of the Asturian Mines will allow of it, it is both a more economical and more appropriate mode than to make a railway, which would be dependent upon a traffic that it has to create for itself. This would especially be the case if the rivers themselves are by any means navigable; for then the condition so much required—viz.: the dispensing with capital—would be at once simply attained; and, although the usual means which are adopted in navigating rivers may not answer in this case (and this would account for no attempt having been hitherto made to utilise the waters of the rivers), with a little ingenuity, I am certain that peculiar vessels might be constructed which would make the navigation perfectly feasible.

Let then the Asturian Mining Company commence, as others have done in similar cases; and when they can show clearly that the produce of their mines and works would suffice for the traffic of a railway, they need have little fear that a railway will speedily be made. I will venture to predict that, when that is completed, the commercial importance of the Asturias will increase with a rapidity such as no one can anticipate, and the Asturian Mines will speedily become an almost unrivalled investment for capital.—O. R.: Oct. 2.

THE ASTURIAN MINING COMPANY.

SIR.—I trust you will permit me to correct, through the medium of your columns, (without impugning the general accuracy or justice of your account), some erroneous impressions which I find have arisen from your report and observations in last Saturday's Journal, as to the meeting of the Asturian Mining Company, on the 25th ultimo. With the policy or apologies of Mr. Moore at that meeting, I am not called on to interfere; the former I considered unwise in bending to the influence of Col. Biré, who, though stating what was literally true, concealed that he knew would have given a totally different version to his representations; and Mr. Moore was by far too polite in reserving those communications which would have justified him in denouncing Col. Biré's position before the meeting, in much stronger language than he used. But what I object to, is, that it has been inferred that the charges, stated by Mr. Moore as affecting the past management, and with respect to Colonel Biré's implication in one of the principal delinquencies, are all weakened by his apology upon an immaterial point, respecting Col. Biré's conduct. This was literally true, *perhaps*, although these gallant officers, both from Belgium, stopped at the same hotel, and came to the meeting with their comrades in compact array—the Col. leading, and the Capt. bringing up the rear, and voting in wondrous unanimity, without understanding a word of what was said.

It is unnecessary to discuss the charges *seriatim*. Mr. Moore was forced to state them in language within the truth—there can be no extenuation, much less denial of them. Contrary to my opinion, Mr. Moore influenced the committee to reserve them for private discussion. But the directors having brought the gallant Colomel into the field against the committee, to force an imprudent and improper contract against the recommendations of the committee,—when the *caser bellis* was disposed of by the *extraordinary* refusal to ratify on the part of M. Grimaldi, to whom the treaty was *ostensibly* so favourable,—these directors could not, as in many more remarkable instances, control their ally; and, accordingly, he endeavoured to annihilate the investigators, who had dared to ask for modifications and explanations. Now, I must remark that the ire of the Colomel appears no less extraordinary than M. Grimaldi's conduct, especially as our attention has been called to one of the effects of Col. Biré's negotiation—viz., that the original *bonus* asked by Mr. Grimaldi, was raised, after M. Biré became the delegate of the company, from 15,000^l. to 35,000^l, the difference being a sum equal to that paid (at 10%)—say 2000 of his shares, as stated by him, the exact number standing in his name being 1505, according to the books.

Be that as it may; the actual facts respecting Col. Biré's *transaction* in these shares, the question at issue between him and Mr. Moore, is not at all affected by the explanation given; for would you believe it, that one of the directors was, from the 19th of June, 1844, to the 15th of January, 1845, the irrevocable delegate, in fact, of the board of directors—as to the issue of shares; therefore, the colonel was coerced to treat with him, and, consequently, in stating what was literally true, he must have been conscious that his contradiction of Mr. Moore substantially merited the epithet with

which he characterised the entries in the company's books; for from those the facts were collected. In a word, from what has passed at the meeting, and what has since transpired, I have no doubt Mr. Moore will be enabled to keep his pledge, so far as Col. Biré's shares are concerned, that no fair duty, or responsibility, can be evaded with impunity.

And here I am obliged to protest against your opinion that Col. Biré was badly used at the meeting. He denied that he had ever seen Captain Goffinet. He had not the hardihood to deny that he had packed the meeting; in fact, no one could doubt it if looked on impartially; and observed how promptly his adherents followed their gallant colonel! I was much amused on one occasion, when that movement was somewhat tardy, to see how his look rebuked them. I am justified, then, in saying the meeting was packed; and, if so, I should like to know, if no such course could be tolerated or palliated, would not be comparable for a Hudson or a Biré, at any time, to crush the independence of every company? I do not speak of the division of the Asturias (which I believe acted conscientiously in declaring the motion carried), but could he, I ask, in any fairness, give a scrupulous apology to Col. Biré, when he refused it to Mr. Moore, especially as many had left the room, deeming the question settled? For my part I do not think such a result unjust when it tends to effectual justice; and, where Col. Biré came to oversee the committee, and mislead the meeting, it is surprising Mr. Moore yielded as far as he did, instead of allowing the consequences of an intrigue to recoil on the directors themselves.

Another so-called explanation appears, by the report, to weaken another charge, though perhaps, in the confusion my denial was unheeded at the time. It was stated that there was a registry at Oviedo, though there was none here at the time the statements were passed. This is not the truth, for there was no existence for the company in Spain till the document passed here on the 19th Nov., 1844, had been afterwards approved in Spain; besides, it was not of the public registry in Oviedo, that there was any question, but of a registry of shares in the company's books in the office in London. I shall not proceed with the other charges, although it is scarcely probable that the truth will, ever otherwise be brought before the public; but I beg it may be distinctly understood, that I do not join in Mr. Moore's exemplification of certain of the directors. He makes a distinction between legal and moral responsibility, and absolves them of the latter. Yet is it not plain that, whoever shares the plunder, if I am forced to pay my money under unexampled pressure, such as the late financial difficulties caused, to support a scheme based on fraud, they who have the opportunity of detecting, exposing, and punishing the guilty, and fail to do their duty, become *parties criminis*, by deluding the victims with deceptive promises. Like those that have induced the Asturian shareholders to pay down their hard cash year after year, with no other effect than to accumulate barriers against their own vindication? Where, then, is the moral innocence of any of the original directors? I contend that all of them are both morally and legally responsible, however late it may be to have ascertained the truth.

I shall only trespass further, to exonerate the committee of investigation from the obliquity to which it is apparently liable from the position of some of its members. Three of the members had, previously to the nomination of the committee, been appointed liquidators—that is to say, to assist in winding-up. Now, these liquidators entered into engagements with the creditors of the company, on the faith of the directors concurring in certain arrangements, which could not be secured without virtually superseding the directors; and, being justified, it is unnecessary to say how far, in actually relieving those gentlemen from their functions, it was not too much to ask them to leave the affair in other hands when they proved and acknowledged themselves to be wholly incompetent. It would be unjust to third parties to state further particulars, and wholly unimportant. Still, if you desire an explanation, I shall submit one that you will receive as satisfactory, proving the perfect legality and propriety of the measure in Spain and in this country as clearly as ever was shown a necessity for appointing a committee for a lunatic. The question of investigation is totally distinct from all this; and the committee is acting in discharge of duties in no wise inconsistent with those of liquidators. The committee does not sit as judges, but as prosecutors, if guilt there be; and every individual in the company is bound to prosecute when he detects crime, from which it is the express obligation of every servant and fiduciary agent in every relation of life to protect his employer.—M. FORRESTALL: West-square, Southwark, Oct. 5.

MINING NEAR TAVISTOCK.

SIR.—Having been informed of a very good new lode being discovered in the parish of Lydford, near the Dartmoor Inn, adjoining the main turnpike-road, leading from Tavistock to Oakhampton, in a mine called Wheal Mary Emma, I visited the spot, and was permitted to inspect it by one of the proprietors, who holds one-half of the mine. There are two lodes within 40 fms. of each other. The south lode has been opened on about 30 fms. in length in the side of a hill, as well as many pits sunk on its run, half a mile to the west of the old workings, by the ancient tinners; it is very evident the lode is regular the whole of the distance already explored, as its character to the extreme points seen are analogous with each other. I think the lodes form a junction about 160 fms. west of the workings, as the north lode has a more westerly direction than the south one, the latter going on an angle of 40° north of west, and the former 30°. The present proprietors have sunk under the old works, merely to ascertain the properties and size of the lode. The tinstuff broken from the sink is very good, producing large grains or cubes of tin, from $\frac{1}{2}$ to $\frac{1}{4}$ in., interspersed in the lode, with a leader on the north part 6 in. wide, very rich. The water being an impediment, they have judiciously taken up an adit level about 30 fms. to the east of the sink, which will give them 10 fms. of backs, when it is being driven under the sink alluded to. The surface rises very fast, going west; I should think, before the present level is driven 60 fathoms, it will be nearly 30 fathoms deep.

In driving the adit 15 fms. the lode is become very settled, altogether 2 ft. big, walls regular, and the leader on the north part 6 in. wide, and will produce 4000 lbs. to every 100 sacks, with cubes of tin on the south, and mixed through the lode, similar to what has been taken from the sink, 15 fms. to the west, and 10 fms. above. This new little mine is likely, ere long, to become a large and profitable concern, as the facilities for working it are rarely to be met with—a good supply of water to work machinery almost to any extent, or, at least, as much as may be required for a mine at a very considerable depth, having 20 fms. of fall if requisite. It is really a splendid discovery so near the surface, and one that ought to be prosecuted with great vigour.

WHEAL ANDERTON MINE, Oct. 4.

JAMES CARPENTER.

SOUTH WHEAL JOSIAH.

SIR.—Seeing reports and communications of late in your valuable Journal relating to South Wheal Josiah Mine, on my visiting the neighbourhood last week, I went to see it. The locality is well known to many of your readers, and to a miner the advantages held out in working the sett are apparent. The lode is of a good size, running into the hill. The adit level is driving on its course; and the ore discovered appears as if it was the top of a branch, being not many fathoms below surface. Capt. Hambly informs me that water from the Tamar can be had, if required, to work a wheel; and, upon the whole, considering the little expense at present incurred, and that will be required to work the mine, with the present indications on so little work done, it appears to me that such a speculation is rarely to be met with. For parties who have capital to chance in mining adventure, there are few places where such good results may be expected from so little outlay.—A CORRESPONDENT: Oct. 2.

SOUTH WHEAL JOSIAH MINING COMPANY.

SIR.—Since my last report to you on this mine, we have driven through a little bunch of ore, which, when the end is sufficiently far on, we shall set on tribute; the lode at present is about 2 ft. wide, rich in muriac, which is moderate for driving. I do not expect this bunch of ore to last up far in the back. We are now about 12 to 15 fms. below the surface; but I suppose it to be the upper or top part of a bunch of ore, that may last down to a considerable depth. Though the ore is so shallow, we dare not say it will not do so; and I believe it requires more wisdom than our friend, "Jacobi Vox," possesses, to say whether it will or not. But I believe, at Wheal Maria, or Devon Consols, they went down about 16 or 17 fms. before they had ore; and you will allow me to say, that this great bunch, which was I suppose never equalled in this county, had a back, or top part, when it was even much smaller than the bunch we have just driven through; therefore, I do not despair of raising large quantities of ore from the bunch referred to in depth.—JOHN HAMBLY: Oct. 4.

ACCIDENTS.

Tolyfeyra.—Richard Daniel was severely hurt while cutting off the end of a bar in the smith's shop. The bar bounded, red hot, from the anvil, and unfortunately struck into his thigh. The unfortunate man applied both his hands to the seething bar in trying to withdraw it, by which he burnt them in a shocking manner.

The Boiler Explosion at Burnley.—We gave in our last a brief account of the frightful casualty which occurred on Tuesday week, by the bursting of a boiler at Mr. Slater's mill, Sandy Gate, near Burnley, and stated that two persons had been killed, and two others so severely injured, that they were not expected to recover. We regret to add that the loss of life was greater than we mentioned—three persons having died on the day of the explosion from the injuries received. Inquests were held on the bodies on Friday morning before John Hargreaves, Esq., the coroner. After a lengthened inquiry, the jury returned a verdict of "accidental death" in each case. They added that they exonerated the boiler maker from all blame, but recommended a stronger construction of boilers in future; they recommended the engineer to take care that in future the peg, indicating the pressure, should be of proper length; and they recommended to all millowners that boilers should be placed in separate buildings, over which no persons should have to work.—*Manchester Guardian*.

Extraordinary Explosion of Fire-Damp.—A curious though serious case of explosion of fire-damp, or gas, occurred on Sunday last, in a house in Gidlow-lane, Wigan. On Sunday night a messenger was despatched from the house in question to Mr. Winnard's surgery, and it was stated that a Mrs. Crook had been severely burnt by an explosion of gas in the cupboard. Mr. Winnard was absent at the time, but Mr. Hutchinson, a medical gentleman from Liverpool, who has been engaged to assist Mr. Winnard during the prevalence of the epidemic in this town, was at hand, and the other part in a month, and as they were raising ore nearly to the amount of their costs, there was no necessity for making a call. Although they had not sampled so many tons in the past month as they had expected, they were in hopes of nearly paying their way. The captain's report was received and adopted, the committee re-appointed with thanks, and the bills passed.

No improvement has taken place in the 46 fm. level since last meeting. There are about 10 fms. more to drive in this end before getting under the over ground in the 34 fm. level. The south end of the cross-course continues to progress with fair dispatch towards the wheel-pit lode, and the ground remains favourable—price of driving 4s. per fm. The communication from the 13 to the 24 fm. level has been completed, and the 12 fm. level continued to the west of the rise. In raising the last 2 fms. the lode became divided into two separate branches, having a horse of killas between them. The north part being most productive, was first driven on, and the first 2 fms. the lode was of the most promising character, but for the last 3 fms. the end has become poorer. In consequence of this the men have been put to drive south—driving by four men, at 6s. per fm. The lode in the 19 fm. level is about 3 ft. wide, producing 1 ton of copper per fm. driving 3s. 10s. There are four tribute pitches working; that in the bottom of the 34 fm. is still looking very promising, although not rich; the lode is from 5 to 6 ft. wide, interspersed with ore throughout. Two pitches are working at the back of the 24 fm. level, by six men, at a high tribute, but it will prove the lode and leave some profit. The September ore has not yet been sampled.

WHEAL BASSET MINING COMPANY.

At the two-monthly meeting of adventurers, held on the 20th instant, the accounts were examined and passed, showing—Copper ores sold, 32831. 11s. 7d.; ditto, 3612. 5s. 5d. (less lords' dues, 2422. 19s. 9d.) = 34017. 17s. 8d.—By labour cost July and August, 1844, 24s. 4d. for ore sold in July, 681. 12s. 4d.; balance down, 102. 10s. The purser stated 200L worth of ore had been sent to market within the last two months, part of which is now due, and the other part in a month, and as they were raising ore nearly to the amount of their costs, there was no necessity for making a call. Although they had not sampled so many tons in the past month as they had expected, they were in hopes of nearly paying their way. The captain's report was received and adopted, the committee re-appointed with thanks, and the bills passed.

BALNOON CONSOLS.—A meeting of adventurers was held at the mine, on the 14th Sept., when the accounts for four months, ending July 31st, were passed showing—Balance against adventurers of 2357. 18s. 5d., to meet which, and for further prosecuting the mine, a call of 3L per share was made.

ASHBURTON.—We cannot report any improvement in this district respecting the various mines; very little is carried on at Owlecombe, Waye, Alston, Whiddon, or at Holme Park, partly on account of the scarcity of water at Ruanhill Coombe. The steam-engine will be shortly set at work, the lode of tin at this present; a dispute has taken place respecting the wages at Pean Recca slate quarry, between the proprietors and the workmen, who are chiefly from Wales; many of them are about to leave, and several fresh workmen from the Delabole slate quarry have been taken on. Haytor granite quarry is going on well, upwards of 150 men are employed, the granite is very superior.—*Plymouth Jour.*

We very much regret to announce the death, at sea, of Mr. Thomas Daubell agent at the Varteg Works. The deceased sailed on the 10th September from Gravesend, on his passage to South Australia, where he had an engagement as an engineer; but soon after entering the vessel, he was severely attacked by cholera, and died on the following day—his body was committed to the deep. He left a wife and four children, who were with him, to deplore his loss.

RUNNAFORD COOMBE TIN MINING COMPANY.

At the eighth general meeting of adventurers, the accounts were examined and passed, showing—Balance in hand last account, 1664. 8s. 8d.; calls, 421. 9s. 7d.; sale of tin (8 tons 15 cwts. 1 qr. 1 lb., at 45. 10s. per ton), 1717. 4s. 2d.; lords' dues, 117. 8s. 8d.; leaving balance in banker's and purser's hands 315. 9s. 7d.—It was resolved, that the committee proceed at once to the recovery of all back calls in the best possible way.—A call of 5s. per share was made, and the following report, from Capt. J. Chenhall, was read:—

Sept. 21.—In presenting you my report, I beg to state that the ground in Morris's shaft is still hard, but the water is not so quick; and if the water does not increase, we shall be enabled to sink to the approaching level without aid of steam; there are about 5 fms. of the same sink below the adit level, sinking by twelve men, at 21. per fathom. The ground in the north cross-cut is much better, and there is every probability of getting very near the lode; there are about 7 fms. fathoms driven, by four men, at 4s. per fathom. I have set the backs of the adit level on tribute, by six men, at 18s. in 11. The sampling will be small, on account of the scarcity of water, as also the backs of the adit level being almost stopped away, and getting so near the surface; the lode is not so rich as when we first commenced sinking. In about two months Morris's shaft will be down, to drive to the cut lode, and there is every probability of cutting a rich and profitable one, from the present appearance in the bottoms of the level, and of its returning large profits to the adventurers. The boiler is at the mine, and in its right position. We have commenced to take out the bob-pit near the shaft. The engine is expected at Tregullis every day, on the way to the mine. —

TRELEIGH CONSOLS MINING COMPANY.

The annual general meeting of shareholders in this company was held at the offices, Old Broad-street, on Wednesday last, the 3d inst.

G. B. CARR, Esq., in the chair.

The CHAIRMAN having read the advertisement convening the meeting, said it was with much pleasure the directors met the shareholders on that occasion, as the mine was in a highly improved state. They had not lately called quarterly meetings, as from the general depression in business, and

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—Field's engine-shaft is sunk 11 fms. 1 ft. under the 50 fm. level, and at this level we intend driving; the lode in the east end of the shaft is 6 ft. wide, 2 ft. of which is good for copper ore, and I think will yield from 2 to 3 tons of ore per fm., worth from 4d. to 5d. per ton; the lode in the west end of the said shaft is about 4 ft. wide, containing a branch of copper ore from 6 in. to 1 ft. wide; the lode in this level having a better appearance than at any other under the adit level, I should recommend sinking under it as soon as it is convenient. We have every reason to believe from the appearances here that something very good is near at hand. The lode in the 50 fm. level, east of Field's engine-shaft, is about 4 ft. wide, and about 2 ft. of the northern part is saving work for copper ore—the appearances in this level are very much better this week; in the 50 fm. level west the men are cross-cutting south in a hard lode dredged with copper ore, and have not yet seen the south wall. The lode in the 40 fm. level is just as last reported, large and poor.

BARRISTOWN.—In the eastern adit end the branches are very small, and as the ground gets hard they seem to diminish; the lode in the back of the adit level is still without alteration, producing about 5 cwt. of lead per fm. In the rise in the back of the 16 fm. level, the lode is considerably improved, leaving good ore ground to stope; as soon as the rise is holed to the bottom of the adit level, which we hope to accomplish in four weeks, this will greatly increase our present quantity of lead raising. The lode in the bottom of the adit level, west of the old workings, at Nangle's, is poor; in the winze sinking to the west of this, in the bottom of the adit level, the lode is very large, 4 ft. wide, with stones of ore only. In the 24 fm. level end, west of engine-shaft, the lode is very regular, about 2 ft. wide, composed of carbonate of iron, blende, and spots of lead. The cross-cut south of Klin shaft will cut this lode in 5 or 6 fms. driving from the shaft—we have driven about 2 fms.; the lode in its eastern course is about 20 fms. south of Nangle's shaft, at the depth of the adit level.

BIRCH TOR AND VITIFER.—The adit on the Old Vitifer lode has been cleared and secured from the fall to this lode about a mile, and from the point at which it intersected the lode to the old engine-shaft, being about 80 fms. This work has occupied some years, and has cost more than £2000.; it will now stand at least 50 years, and I consider this to be a very valuable and important work done for the mine. Dunstall's shaft is 34 fms. from surface, and 20 fms. under the adit—the lode in the bottom of this is very good. The 10 fm. level, west of this shaft, has been driven 15 fms.; the lode passed through a hard bar of ground from 15 to 17 ft. thick, before it entered the ground, and after it passed through it the lode has been good, worth throughout full 8d. per fm.; the 10 fm. level, east of this shaft, was poor until it got out of the influence of the cross-course, which extended about 13 fms. The 12 fm. level, since driven, has been through a good lode, and the present end is very good, worth full 8d. per fm.; this is highly encouraging, as we are driving into a very high hill, and are getting near to the sill beds, which report speaks so highly in the ancient workings. The 20 fm. end has been driven 2½ fms., the first fathom through a good lode; the end then entered the hard bar of ground, and with in the 10 fm. level, and has been driven in it about 9 ft., and we expect to have 8 ft. more to drive before we come into the course of tin met with above.—I like to see this hard bar of ground going down regularly. This end is in the ground, disordered by the cross-course; we have cleared about 8 ft. of it, and have, consequently, about 11 fm. more to clear before we come into settled ground, when we shall again meet with a good lode, as we have done in the 10 fm. level above. The old engine-shaft, on the Vitifer lode is 14 fms. from surface; we shall begin to clear up this shaft in about a week, and when it has been cleared to the 20 fathom level, we shall have a very large extent of lode open. No stopes have been let in this lode as yet, but on Saturday I shall set three tribute pitches; this tin will not come into the samplings until after the present month. Then our returns will considerably increase—I never saw a better tin lode opened than the Old Vitifer lode. Our ground is very good, for driving, and stands with little timber. In the shallow adit, east of Hawk's shaft, on Birch Tor lode, we have had upwards of 50 fms. of ground, which has all come away at a moderate tribute; the end is still good, and in stopping the backs behind this end we have met with a considerable improvement, the lode here being all worth 8d. per fm., and there is about 20 fms. of backs. The 10 fm. level west of Pridieux shaft is left at a tribute of 13s., and the 10 fm. level east is left, the back with the end, at 10s. tribute. In our tribute bargains the tin is taken at 36s., which makes the tribute appear much higher than it actually is. The cross-cut on the north lode is progressing satisfactorily; there is a fair supply of water, and I have now 32 heads of stamps at work, and shall have more shortly.

BRYN-AR-IAN.—The lode in the 10 fm. level, east of the engine-shaft, is 8 ft. wide, very throughout; the part of it we are carrying for the level is yielding 1 ton of ore per fm.; the same level, driving west, has a side 3 ft. wide, with small branches of ore interspersed throughout. The stopes in the bottom of the deep adit level, east from the shaft, are producing 15 cwt. of ore per fm.; the stopes back over the deep adit level, east from the shaft, produces 1 ton of ore per fm.; the stopes back over the deep adit level, west from the shaft, yields 10 cts. of ore per fm. We sampled 20 tons of ore on Saturday last, and are still in a regular course of dressing; added to which, we have a large quantity of work already broken.

CARTLEW CONSOLS.—At the upper mine we have this week cleared and secured the sink in the engine-shaft between 4 and 5 fms. below the 55 fm. level; about 24 fms. will I anticipate, show us the bottom. Nothing has been done this week in the 55 fm. level, and in the tithing department elsewhere, I find no particular change since my last report, but the tribute looks admirably well, yielding far greater quantities of ore than I expected, principally in lead. At the lower mine I find the ground somewhat harder than when last reported on, but the lode much the same. We sampled on Monday, the 1st instant.

CWM ERFIN.—Our stops, east of the engine-shaft, in the back of the 20 fm. level, are worth 7d. per fm.; ditto, 10 fms. east of ditto, worth 6d. per fm.; ditto, 30 fms. east of ditto, worth 10d. per fm.; ditto, 30 fms. east, worth 10d. per fm.; ditto, 40 fms. east, worth 12d. per fm. The 20 fm. level, east of the whin-shaft, is poor. The stops over the 10 fm. level, 25 fms. east of the whin-shaft, are worth 6d. per fm. The 20 fm. level, west of the whin-shaft, is poor; the 20 fm. level east is worth 10d. per fm.

DEVON AND COURTEENAY.—The lode in the tin sinkings in the bottom of the 40 fm. level continues large, and without any material alteration—water favourable. The lode in the rise is now saving work, 6 in. wide, worth 6d. per fm., and I think, will soon improve. In the cross-cut driving north, in the 50 fm. level, I have put the men to drive east on the lode reported on last week; as we go off from the cross-course it is opening and crossing two good walls; it is now 2 ft. wide, and improves as we get off from the cross-course. The tribute pitches are as usual.

EAST CROWNDALE.—We beg to hand you our report of the mine, with list of settings. The middle shaft, to sink by nine men, stented 4 fms. in the month, at 10s. per fm.; the present depth is 4 fms. 5 ft.; the lode has improved in character in this depth, being more concentrated and better defined, producing at times good stones of tin, but on the whole, not rich. The stopes east of middle shaft, in the bottom of the 17 fm. level, by two men, stented the month, price 45s. per cubic fathom; these stopes are producing saving work, which will leave a profit; the stopes east of middle shaft, is the back of the 17, by three men, price not fixed; this should be worked on the tribute system, but we are not in a position to do so, as so closely connected with the owners' ores; this lode is worth at least 10d. per fm., and the cost will not exceed 40s. per fm. in sending it to surface. The 25 fm. level to drive west, by two men, stented 4 fms. in the month, price 45s. per fm.; the indications of this end are flattering; the lode well defined, 2 ft. wide, is producing copper, muriatic, peach, prian, and spar, in a good stratum of ground, and our opinions are, that this lode will make copper in going west. Our rods, &c., are progressing satisfactorily, and will be ready quite in time for pumping from the middle shaft. The weight of the last parcel of tin is not yet arrived, but we expect it by Monday or yesterday's post.

EAST TAMAR CONSOLS.—The shaft has been sunk 2 fms. under the 40 fm. level, and ground cut for tramroad, bearers, and cistern—the men are now engaged in fitting plunger-lift, &c. The 40 fm. level has been extended 5 fms. 4 ft. 6 in. south of the engine-shaft; the lode in the end is 3 ft. wide, and easy for driving work from 2 to 3 cwt. of lead per fm. The 70 fm. level has been extended 4 fms. 3 ft. 6 in. south, in the end the lode is 4 ft. wide, composed of flookan and horn-spar, and worth 8 cwt. of lead per fm.; the same level has been extended 3 fms. 0 ft. 3 in. north; the lode in the end is 3 ft. wide, yielding 6 cwt. of lead per fm., and likely to improve. The 60 fm. level has been driven 2 fms. 5 ft.; the lode in the end is hard, and rather disordered, but producing good stamp work; the same level has been extended 2 fms. 2 ft. 6 in. north, the lode is 3 ft. wide, and worth 6 cwt. of lead per fm., and is in an improving state; the winze in the bottom of the 60 fm. level has been sunk 1 fm. 4 ft. 6 in., the lode is large, and worth 9 cwt. of lead per fm.; this winze is about 8 fms. from the north end in the 70 fm. level, and will lay open a fine piece of ore ground. The tribute department, &c., are progressing satisfactorily, and will be ready quite in time for pumping from the middle shaft. The weight of the last parcel of tin is not yet arrived, but we expect it by Monday or yesterday's post.

EXMOOR WHEAL ELIZA.—The lode in the 24 fm. level is still about 4 ft. wide, composed of muriac, copper, and spar, of a beautiful appearance, although not rich at present; the cross-cut south, in the same level, has been harder of late—being subjected to branches of white iron. We hope to intersect the south lode in a little less than a month from this date.

HEIGNSTON DOWN CONSOLS.—We shall commence cutting into the lode in the 45 fm. level, from Bailey's engine-shaft, in the course of the present week. The lode in the 35 fm. level, east of the cross-cut, is without important alteration since my last report, an also the lode in the 29 fm. level, west of Hitchins's shaft.

HOLMBUSH.—The lode in the 120 fm. level south is 5 ft. wide, and will produce 3 cwt. of lead per fm., ground very favourable for exploring; the ground is again favourable in the 120 fm. level cross-cut south, towards the flap-jack lode, being a beautiful white soft killas stratum, which we hope will continue. The lode in the 110 fm. level south is 3 ft. wide, producing about 2 cwt. of lead per fm. The flap-jack lode, in the 100 fm. level, east of the great cross-course, is 20 inches wide, composed of spar, muriac, and stones of copper ore; the lode has improved within the last few days, and we hope a much greater improvement will speedily take place. We sampled on Friday last, at Calstock Quay, a parcel of copper ore, computed 61 tons, and have this day shipped the parcel of silver lead ore, weighing 30 tons 6 cwt., on board the *Lewis*, John Haydon, master, to Messrs. Pontefract and Wood, at Wellington, Newcastle-on-Tyne, at which place I hope she will arrive safe, and be found correct.

KINGSETT AND BEDFORD.—I was at these mines on Saturday, but in consequence of indisposition, was unable to go underground, the water being also very deep, by reason of their laying the railway. Capt. Harris, who was down previous to my visit, brought up a good stone of lead from the lode south of the rise, where he says it is more than 3 ft. wide, and a solid head of lead on the foot-wall from 3 to 4 inches wide. The lode, during the last three days' working, has been found to increase in size more than half; it is spotted with lead throughout, but we shall see more of it Saturday next, when I hope to go underground, that being our setting-day, and I hope the tunnel will be completed. We sent down the wagon on Saturday, and it worked extremely well. We expect to set the men rising on Saturday next. Our south end is driven so far south as to reach the north part of the old workings within a fathom or two—I mean that to the north of Luke's; as we rise up a few fathoms, we expect to reach a good course of lead. There is something of an improvement in the copper lode. We have cut into a black capel stone about 1 ft. thick; such sort is very congenial for copper, and is the first appearance of this description of stone I have seen in this mine; it

is spotted with very weak yellow copper; how long it will continue I cannot say; all I can state is, it very much resembles that of Great Friendship. If the strata around the lode corresponds with the capel, I shall shortly expect something of importance, but without a change of strata, we consider it a "flash in the pan," as regards copper. The ground in the rise, or the caunter lode, is much softer, and the lodes more compact, producing good work for lead.

KIRKCUDBRIGHTSHIRE.—The lode in the 62 end east is near 3 ft. wide, composed of sulphur, jack, and lead, with a kindly spar; the lode in the 62 west is 2 ft. wide, with a fine rib of ore in the upper part of the end, yielding 7 or 8 cwt. per fm. The lode in the 50 fm. level west is still improving a little, good stones of ore coming in the back of the end with better ground. We expect to hold the winze above to this end next week, which will improve the lode in both the levels. We intend sending off a cargo of ore in the beginning of next week.

LAMHEROOE WHEAL MARIA.—At the engine-shaft we have commenced driving north, and expect to have about 4 fms. before we intersect the lode. The shaft being west at first starting, I have set 1 fathom only at 6d., as I think we shall be able to drive at least one fathom after the first is completed, and hope to accomplish the rest of the end of the present month unless an unforeseen accident should occur. At Davey's shaft, three of the horizontal rods have broken, and four others are not trustworthy, so that it will take us this week in getting the whole work finished, as I am afraid to risk them any longer, for fear of danger. Having disengaged the rods, the engine will still continue driving, so that we shall not interrupt the progress in the high shaft.

MENDIP HILLS.—During the past week several of our hands have been engaged in making a reservoir at the upper part of Blackmoor dressing floors, for the purpose of collecting water for dressing, as also in clearing the large drain around the north side of Blackmoor slag ground, in order to prevent, if possible, the surface water falling to the bottom of the valley, in case of heavy rain. At Ubley, we continue to press forward as fast as we possibly can with our different operations for the dressing floors, which are in a forward state of completion. Charterhouse Valley presents much the same appearance as when last reported, producing some good quality slags and slimes. The new straps for driving the fan, I am glad to inform you, have arrived. We have this morning commenced smelting; we hope to get a sufficient quantity of slag to keep the furnaces engaged a week or ten days.

OLD WHEAL PROSPER.—In the last week's report there was a typographical error—instead of "1900 gallons," it should have been 12 cwt. of tin to the 100 sacks of work. We have now plenty of water for our stamps, and, as soon as the small engine is erected on our present workings, we shall make good returns. The lode is very well looking. I have sent a report to the office from one of our first-rate mining agents in the neighbourhood, who is well acquainted with our mine, which, I think, will be received with great satisfaction. It is currently reported here the Great Hewas Mine is very soon again to be set to work. If such is the case, it will raise our mine many thousand pounds in value, as they will nearly drain it of water to the 70 fm. level.

SOUTH TAMAR.—The plunger-lift is fixed in the bottom level, and the mine is now in fork. We have had the misfortune to break the main rod twice, which has impeded our operations, and prevented us from extending the bottom level. In the 90 south the lode is 3 ft. wide, easy for driving, and will yield 8 cwt. of lead per fm. In the 80 south the lode is much altered and improved; it is now composed of capel and ore of a rich quality, to the extent of 15 to 16 cwt. per fm.; the lode is very regular, with a flookan 10 inches wide under it, and there is no doubt but we have reached the shoot of ore first seen in the 30 fm. level. In the 70 south the lode has not been taken down during the past month. The 55 south is being cleared; the end is 20 fms. from the shaft, and still in a fit state. The stopes in the back of the 30 fm. level have produced a large quantity of water, some of which will be dressed by hand, but the greater part must be stamped.

SOUTH WALES MINES.—The Dalwin deep adit, to drive east of the engine-shaft, is fixed in the bottom level, and the stone is much better for blasting. The West D. is in fork. We have had the misfortune to break the main rod twice, which has impeded our operations, and prevented us from extending the bottom level. In the 90 south the lode is 3 ft. wide, with stones of ore. In the 80, west of ditto, lode 20 in. wide, worth 12d. per fm.; in the 80, east of cross-cut, lode 2 ft. wide, worth 8d. per fm. In the winze below the 80, lode 18 in. wide, with good stones of ore, and is looking kindly. In the 60, west of Garden's, lode 20 in. wide, with stones of ore. At Wheal Parent, the engine-shaft, below the 30, is sinking in the country. In the 30, east of ditto, lode 2 ft. wide, worth 7d. per fm.; in the 30, west of ditto, lode 20 in. wide, with stones of ore, and is looking kindly. The rise above the 30 is set on tribute. In the winze below the 20, lode 18 in. wide, poor. In the whin shaft, below the 12, lode 1 ft. wide, with stones of ore. At middle lode, Nicholson's shaft, below the adit, lode 1 ft. wide, poor.

WEST DOWN CONSOLS.—The following report was read at the meeting of adventurers, held at the mine on the 24th Sept.—a notice of which, with the accounts, appeared in our last:—According to your request, I have taken a survey of the surface of the mine, sketched the run of lode already seen, as near as possible, and also ascertained the heights, to enable you to judge where you are disposed to sanction a proceeding, which is absolutely necessary to carry on future operations, as regards the erection of a water-wheel, with the proper appliances to drain the mine, and sink the shaft under the present depth (which is only 7 fms. under the surface), as well as to stamp the tin ore already raised from the shafts and stopes. It is evident the lode is large, from the size of the rock; broken from it, and there is no question but the tin ore is of a very superior quality, and no doubt further development will show it to be productive of quantity. The middle lode (three in number) appears to be the main or master one, both on the summit of the hill, as well as at the shaft, the characteristics in both places are very similar. The pits which have been sunk on the summit 60 fms., to the west of the cross-course, present indications of productivity, and the shaft where the tin has been raised, being 250 fms. east of the cross-course, gives me an idea that it will be a lasting and productive mine. There is also another lode about 5 fms. north of the one alluded to, very regular, but not large, which is inclined to form a junction with the middle lode ere it is intersected by the cross-cut adit level, about some 25 fms. driving north, to which must be added the underlay, but that is not yet exactly ascertained, but, if correct, with what has been seen in the shaft 100 fms. east of the before-mentioned cross-cut, it will increase its length from 25 fms. to nearly 40 fms. The depth of adit, when up to this point, will be 65 fms. under the surface.

WEST WHEAL JEWEL.—The following report was read at the meeting of adventurers, held at the mine on the 24th Sept.—a notice of which, with the accounts, appeared in our last:—According to your request, I have taken a survey of the surface of the mine, sketched the run of lode already seen, as near as possible, and also ascertained the heights, to enable you to judge where you are disposed to sanction a proceeding, which is absolutely necessary to carry on future operations, as regards the erection of a water-wheel, with the proper appliances to drain the mine, and sink the shaft under the present depth (which is only 7 fms. under the surface), as well as to stamp the tin ore already raised from the shafts and stopes. It is evident the lode is large, from the size of the rock; broken from it, and there is no question but the tin ore is of a very superior quality, and no doubt further development will show it to be productive of quantity. The middle lode (three in number) appears to be the main or master one, both on the summit of the hill, as well as at the shaft, the characteristics in both places are very similar. The pits which have been sunk on the summit 60 fms., to the west of the cross-course, present indications of productivity, and the shaft where the tin has been raised, being 250 fms. east of the cross-course, gives me an idea that it will be a lasting and productive mine. There is also another lode about 5 fms. north of the one alluded to, very regular, but not large, which is inclined to form a junction with the middle lode ere it is intersected by the cross-cut adit level, about some 25 fms. driving north, to which must be added the underlay, but that is not yet exactly ascertained, but, if correct, with what has been seen in the shaft 100 fms. east of the before-mentioned cross-cut, it will increase its length from 25 fms. to nearly 40 fms. The depth of adit, when up to this point, will be 65 fms. under the surface.

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WHEAL FRANCO.—The lode in the 62 fm. level, east of the engine-shaft, is large and grey—a very promising lode, which has improved in appearance since the last monthly report. The lode in the 62 fathom level, west of the said shaft, is producing some ore, but is not yet clear of the influence of the cross-course. The lode in the 60 fm. level, east of the engine-shaft, is a promising character, and producing some ore, but not rich; this winze is about 10 fms. east of the cross-cut adit level, about some 25 fms. driving north, to which must be added the underlay, but that is not yet exactly ascertained, but, if correct, with what has been seen in the shaft 100 fms. east of the cross-course, it will be productive of quantity. The middle lode (three in number) appears to be the main or master one, both on the summit of the hill, as well as at the shaft, the characteristics in both places are very similar. The pits which have been sunk on the summit 60 fms., to the west of the cross-course, present indications of productivity, and the shaft where the tin has been raised, being 250 fms. east of the cross-course, gives me an idea that it will be a lasting and productive mine. There is also another lode about 5 fms. north of the one alluded to, very regular, but not large, which is inclined to form a junction with the middle lode ere it is intersected by the cross-cut adit level, about some 25 fms. driving north, to which must be added the underlay, but that is not yet exactly ascertained, but, if correct, with what has been seen in the shaft 100 fms. east of the before-mentioned cross-cut, it will increase its length from 25 fms. to nearly 40 fms. The depth of adit, when up to this point, will be 65 fms. under the surface.

WHEAL MAY.—We have opened on a very fine copper lode, and raised a quantity of rich copper ore, a small box of which I have forwarded to the office in London. We are driving now towards the lode, which we hope to cut within six weeks, if the ground holds it as. We have set the end to drive at 55s. per fm. Things are looking very favourable with us at present. I shall give you further particulars next week.

WHEAL PENHALL.—The ground in the engine-shaft is much as last reported, and the lode is not very difficult; we are now down between 6 and 7 fms. below the 20 fm. level; the north end in this level is much improved since my last; the lode is now yielding good work in lead; in the south

of more than 45°, it would suffice you to 200 varas in width. In this sett we had two lodes, one nearly perpendicular, and the other having an underlay of more than 45°; on this I asked the measurement, by which I embrace the two lodes, being 300 varas. In sinking the pozos, which occupied us five days only, we broke out 4 tons of excellent ore, say 35 per cent.; but, in doing this, we did not carry more than half the width of the vein. I cannot proceed with the operations of this mine for a month or two, solely because the tropo is occupied in carrying ores from Choco and San Pedro to load the *Nao*; but, as soon as this ship is dispatched, and I can dispose of the tropo to carry the necessary materials, provisions, &c., I shall set to work with spirit, and hope, in the course of the ensuing summer, to see a good pile of ore carried from this mine to the Port of Chancay, and we have every prospect now of having a most favourable season; but, at present, being winter, and from scarcity of grass, and immensely high prices of land carriage, we labour under very considerable disadvantage, which materially affects all our mining operations.

Produces at Choco for June Tons 40
Ditto at San Pedro 17
La Campaña 61

SILVER MINES.—Al Fin Hallada.—The lode in this mine has not been broken down since I addressed you last, but will be commenced in a few days from this, and we have every reason to hope and believe that it will be the best quebra ever yet made in this mine. I am anticipating 5000 mcs, at least, judging, of course, from the quantity of lodes desired, and from the silvery appearance in parts where small pieces have been broken off.

Safo Jose del Carmen.—In a wince sinking about 10 fms. below the surface, we have a beautiful lode, about 3 ft. wide, all of which is producing silver, and about 9 in. of which is very rich—say, one of from 500 to 600 mcs. per cajon; the other part is one of from 80 to 90 mcs. per cajon. In the shallow adit level we have a pretty lode, about 2 ft. wide, and nearly 1 ft. of which is ore similar to the stone I sent you per *Balouine*. In the other parts the lode has not been broken down in the last month. The produce of this mine for July is about 30 tons.

Carmen Alto and Pionero.—In our deepest workings on the Carmen lode in this mine, which is about 20 fms. below the surface, we broke down the lode a few days since, and in the very bottom the appearances are so flattering, that I cannot believe it possible another month can pass over, without our cutting a good bunch of ore; from the last piece of vein we got out some few beautiful stones of ore, and one with thick scales of horn silver; this has given great hope to us all, because it is such a master lode, that if it once strikes into good ore, there is every reason to believe that it will be abundant. The new shaft is 18 varas deep, and we are sinking it with all possible speed, for the object that I stated in previous letter, of cutting the three lodes in depth, or rather reaching the point where we believe the three lodes will form a junction; we are working at three other points, all of which are looking very encouraging.

Mercaderes.—A few days since we commenced sinking on that part of the lode where some two or three months since we had broken out some silver, and we are in great hope that, before I address you again, we shall have an excellent lode of ore. We are sinking a shaft on the lode near the boundary of the San Jose del Carmen, in hopes of cutting the same bunch of ore that they have in this mine, and which appears to be dipping towards the shaft, and is now being wrought, and from which it appears reasonable to expect something good.

Santa Ana.—This is a mine of great promise, in which I have bought six barras, or one quarter share for the company, since I last addressed you; it is situated in a beautiful hill, and has a fine well-formed lode, running north and south through the sett. The work done in this mine is not very extensive, but it has opened some very pretty and productive ground. A shaft has been sunk about 5 fms. deep, and when only 9 ft. below the surface cut a beautiful bunch of rich silver ore. At the aforesaid depth of 5 fms. two levels were started, one north and the other south, in both of which the vein was good, and when I bought it the one north had been extended about 4 fms., the other about 3 fms., leaving a very rich lode in the back and bottom, varying from 9 inches to a foot wide; the ore in sight I calculated was ample to pay the amount of purchase-money, and I have not the slightest doubt that in three or four months I shall have all the outlay back again. We have now commenced sinking on the lode below the said level, and I hope in my next to be able to report a good bunch of silver, and a good produce for August.

Tunelito.—This mine is adjoining the Santa Ana, on a parallel lode, in which the company holds 174-24ths. We are sinking at two different points on this vein from the north shaft, which is now about 4 fms. deep; we have taken out some beautiful stones of silver ore, one of which I shall send you per *Sion*. The lode is very much like that of the Santa Ana, only larger, about 2 ft. wide, and I am expecting every foot we sink to cut a good bunch of silver. In the south shaft we have also a beautiful lode, but no silver in sight as yet—but then we are only 3 fms. deep.

Loreto.—We are sinking two levels in this mine, but the lode in both is poor, and does not look so favourable as when I reported on them last.

Calvario.—We are driving at three different points on this vein from the north shaft, which is now about 4 fms. deep; we have taken out some beautiful stones of silver ore, one of which I shall send you per *Sion*. The lode is very much like that of the Santa Ana, only larger, about 2 ft. wide, and I am expecting every foot we sink to cut a good bunch of silver. In the south shaft we have also a beautiful lode, but no silver in sight as yet—but then we are only 3 fms. deep.

GOLD MINES.—Desubidora.—This mine is greatly improved since last reported on. The lodes in the bottom level is now more than 2 ft. wide, and the ore good; about 6 tons have been sent to the city in the last month, that has produced about 96 ounces of gold, and we are now breaking down the vein again, which, we believe, will yield richer ore than that above-named. In two other levels we have also a good lode, about 1 ft. wide, where a great deal of ore is of an equal quality.

Santa Domingo.—The ore in this mine is abundant, but the quality generally is inferior to the Desubidora ore, only yielding about 3 ounces to the ton; this, however, would pay well, if we had an amalgamation establishment at Pujolas, and which I hope we shall be able to erect in a few months. I have given directions that only the very best be selected in future to send to the city. We have five lodes in this sett, and nearly all of them large; but we are only working on one, with three miners driving a level, and in it the lode is more than 5 ft. wide. Should we be fortunate enough to cut a rich bunch here, it would soon pay all the gold mines.

Chacabaca.—We have cut a beautiful lode in the bottom of this mine, from which we have taken some very rich stones, one of which I shall send you per *Sion*; but as this mine is not yet measured, I have suspended operations until the disputes are settled. There are some adjoining mines that have previous pedimentos, but none of them will be able to take any part of this mine; still their disputes must be adjusted before I can obtain the measurement of it. I hope by next month it will be settled, and that I shall be able to report that the rich ore is continuing.

Espereza.—I have had this sett measured, and all the landmarks fixed; we have in it two beautiful gold lodes and one silver lode, recently discovered by Capt. Francis. On the gold lodes we have two miners only working, the one sinking a wince and the other driving a level. In the wince we have a pretty vein, producing some stones, with gold in sight; but the quantity of ore as yet is small, and the end is at present poor. I have put two men to work on the silver lode, and not more than a foot below the surface they found stones with silver in sight. I believe this will turn out to be an excellent property.

By the present packet I remit you 1510 mcs. of platina, and 420 castellanos 5 to mines of gold in one ingot.

Rio.—On the 4th July, about six a.m., it came on to rain here heavily, and continued to fall, without interruption, until about three in the afternoon; such a shower I have never seen in Copiapo. On the 26th we had another shower here that lasted about an hour, and should we be fortunate enough to get three or four hours more rain, before the earth dries up again, it will, no doubt, be the best season that has been known in Copiapo for many years.

IMPERIAL BRAZILIAN MINES.—Gold Report:

Gongo, from the 13th to 20th July Lbs. 2 11 13 0
Ditto, from the 21st July to 21 Aug. 8 1 10 0—Lbs. 12 1 3 0
Bananal, from the 13th to 21st July 1 9 18 0
Ditto, from the 23d July to 28 Aug. 5 0 14 0—Lbs. 10 12 0

Produce from 1st July—viz., Gongo Lbs. 15 9 2 0
Ditto Bananal 10 5 13 0—Lbs. 26 2 15 0

No letters received per the packet, supposed to be coming by some other conveyance.

NATIONAL BRAZILIAN MINES.—Cocais, July 13.—Hamilton's stope was commenced on the 3d inst. at the back of the eastern end, at which point there is now a large party of negroes employed, and the daily returns obtained from thence are very encouraging indeed. The vein, however, had not been seen for some time until this afternoon, when it again opened, producing beautiful stones of gold, so that to-morrow we may expect an improvement at the washing-house; and, from the present appearance of the lode, we shall look forward for a large produce for the next 10 days. In fact, we can make no correct calculation as to what quantity may be obtained, for our present position, relative to the locality in which the riches were found by the former proprietors of this mine, could not be more favourable.

July 23.—The most eligible method of excavating the line of ground westerly from Hartley's stope to as far as it may extend, is rather an important object to be looked at, and will require some consideration. The distance to drive, according to the last measurement, is about 7 fms., and the ground is hard, but there will, in all probability, be veins met with in which large quantities of gold may be found, for the line is unexamined by us above Hartley's stope. We will endeavour to give you something further on this subject in the next report.

Cocais produced to 3d July Mts. 17 3 1 17
" 13th July 20 0 4 53
" 23d July 15 6 1 50

Total produce for one month Mts. 53 1 7 48

August 3.—At Hartley's eastern stope the operations have been carried on as advised in the last report. The iron rod alluded to has been broken through at the south part of the stope, and the lode to the east presents a more promising appearance.

Cuiaba, July 26.—During the last week we have met with a very promising floor in La Pagina, a few very different to any we yet met with west of the slide—on pulling verish a bates of it is stone it showed extremely well. We have not yet cut far into this floor, consequently I am unable to inform you as to its extent.

3d August—produce from Cocais Mts. 10 0 1 42

25th July—ditto from Cuiaba 1 2 3 18

Total Mts. 11 3 4 60

Remitted, per Sea Gull packet, about 1800.

ST. JOHN DEL REY MINES.—Morro Velho, July 18.

Gold extracted to date, 7069 oitavas, from 419-92 cubic sand (result of 10 days' stamping)=6-82 oitavas per cubic foot. Stamps working 27 days, average 94-64 heads. Supply of stone, without alteration, as regards what is received from the mine.

July 28.—Gold extracted to date, 14,991 oitavas, from 2731 4-10 tons of ore=377 cts. per ton, and being the result of 20 days' stamping. Stamps working 27 days, average 94-68 heads. The supply of stone has been, during above 20 days, without alteration, but since then it has visibly improved, so that, for the last day or two, we have been enabled to suspend bringing in any from the refuse heap. This improvement is owing partly to our having been enabled to send into the mine a few hands, called from amongst the surface blacks, and partly to having a greater number of bowers in the middle cacheiros.

Prior to the time of Capt. Verran, the branch lode near the rut was worked, and found to contain some of the best ore in the mine, worth at least 5 lbs. per ton; but, in Capt. Verran's time, finding that this branch, it was necessary to penetrate through 11 or 12 ft. of killas, it was considered that this circumstance rendered it not worthy of further attention, and it has been in consequence rendered since discontinued. After, however, we have ventured to drive a cross-cut to this branch, and have found the lode to 7 ft. wide, after penetrating through only 6 feet of killas; and Captain Treloar, and all the under captains, agree that it ought no longer to be neglected; it has been determined to open out and work this branch henceforth. It will form a very valuable addition, both as to quality and quantity, to our present resources. But having arranged previously to leave a pillar at the very spot, we can only partially open the additional lode until the pillar be finished—say, about January next.

In the inclined planes, in the Bahia, the first line is so far advanced, that Capt. Glover hopes, in about five weeks, to be enabled to get the first station to work, which will let the kibbles down directly on the gut, and will be a great assistance to us in hauling the additional quantities of stone which will be coming from that quarter, in consequence of opening out the branch lode; and the second line must be pressed forward the moment we can arrange to supply the requisite mechanics and timbermen for that purpose.

Lyon Stamps.—The roof of these stamps, as well as the supporting timbers thereof, have been in a dangerous state of decay even before my arrival at Morro Velho. Repairs, as well as new constructions, of a more important and pressing nature, have hitherto prevented my paying the needful attention to this subject; but the reports as to the dangerous state of this roofing, &c., having latterly become more urgent, I have found myself compelled to commence, without further delay, this business, in order to have it in good repair before the termination of the dry season.

Christie's Tunnels.—I hope another week or two will see the completion of the third tunnel, and bring to a close this long and expensive, but highly-important, undertaking.

UNITED MEXICAN MINES.—Guanajuato, August 10.

MINES OF RAYAS.—I have to hand you, as usual, Mr. Parkman's detailed report on the company's mines, corresponding to the last month, and also the comparative statement of returns and outlay of the mine of Rayas; by the latter of which, it will be observed that the sales on joint account with buscones have fallen off in value, whilst, on the other hand, the picked ore have increased in quantity by 575 cargas on 1-6th of the preceding month, which more than equals the decrease in the said sales. The most advanced point to the south-east, the end of Santo Toribio, has fortunately shown great improvement lately; and from its present appearance, as well as important character in being situated in extensive virgin ground, leads me to look forward to early and good returns from it, both in gold and silver, inasmuch as any assay made yesterday of its actual produce, though small, gives me 45-69 mcs. of silver to the monton of 32 quintals, and 50 grains of gold to each marc of silver, equal together to \$494 per monton, or \$53 per caga—the other produce averaging now only \$15. In other respects the working do not present any new feature worthy of notice.

Five weeks to—Picked Ores Sales Outlay.
June 30 Cags 2815 36901 7 4 \$23,489 0 4
July 4 3390 3955 0 4 24,763 5 0

Cargas 575 Increase. Decrease. Increase.

MINE OF ALDANA.—The sinking of the shaft has been partially interrupted by an accident of water into it, owing to the heavy and continuous rains, but exertions are in progress to overcome the difficulty, as occasion requires. The interior pit is advancing as usual, and is now full 40 varas below the level reached by the shaft, and continuing in comparatively dry ground, shows that the water recently increased in the latter is solely caused by the rains.

MINE OF PROMONTORIO.—The sales by buscones have materially decreased in the last month, owing to a general falling off in the workings, but which now show a trifling improvement. The level and pit to the south-east, both works of research, are poor in produce, but are continued in the hope of better results are long.

MINE OF JESUS MARIA AND JOSE.—The shaft, which is the only work in progress, has already obtained a depth of 12 varas. A horse whin and corresponding surface buildings, on a small scale, will be shortly erected, but the progress therein will be slow, until the rainy season shall terminate.—J. N. SHOOLBRED.

The following is the report on the state of the workings in the mines of Rayas, Aldana, Promontorio, and Jesus Maria:—

Buscones.—In those parts of the mine in which they are employed there has been no change for the better. In these times the ore they produce does not attract competition in the sales, and their work is badly compensated, the consequence being their numbers are decreasing. This evil appears to have no available remedy.

Frente de Santo Toribio.—This work has advanced during the month 7-11 varas. The traces of ore mentioned last month have manifestly improved; and this is the more encouraging, as it is the advanced working to the south-east.

Cruero de Santo Toribio.—This work, in very hard rock, has advanced 3-50 varas, without any improvement in the prospect as to ore.

Santo Toribio Workings.—In these there has been no change worth notice. The best ore produced has been from the Contra Cielo de La Purisima, which is the highest point. In Jesus, which is somewhat lower, the ore is more inclined to make upwards than to the south-east, where it has been heretofore good. The deepest point (the pozo de Santo Toribio) is promising improvement. These ores are poor in silver, but with a high ley of gold. To the north-west of this, and higher up, are the two pozos de San Vicente, which are giving a small quantity of good ore. The nominal number of barrios employed is 54 by day and night; but the scarcity of workmen frequently prevents making up this number. The ore is remitted to the hacienda in five weeks amounts to 3390 cargas.

MINE OF ALDANA.—In the shaft of this mine little progress has been made, as it was found necessary to suspend the sinking, during 34 weeks, to timber 17 varas of softer ground, which had been left overhead, and which, from the action of the atmosphere, became dangerous. This being secured, the sinking was resumed; 1-60 varas have been driven, making total depth of 76-60 varas. In the meantime the pozo de Santo Toribio has advanced 7-84 varas. During the past week, in consequence of the very heavy rains, the water has increased greatly in the shaft; but, although this will retard the work, we are in hopes that it will not suspend it, and that the evil will pass off with the rains which are to come.

MINE OF PROMONTORIO.—The works of buscones in this mine have rendered small assistance towards the general expenses of the same, but is persevered in, in such points as combine special interest. The level to the south-east of Santa Catalina has advanced 7-82 varas, and is at present poor. A pozo opened in this working is giving a small quantity of good ore.

MINE OF JESUS MARIA.—Agreeably to the system of working mentioned last month, a few men have been employed in sinking the shaft, which is now 12 varas in depth, and the necessary materials are being removed to the mine. The shaft must advance slowly until the rains are over, and a malacate put up, which is now ready.—S. F. PARKMAN.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

BLISLAND CONSOLIDATION AND COPPER MINE.—I visited this mine on Saturday last; the sett is large and extensive, situated on the junction of the killas and granite, with water-power sufficient for all purposes; a 30-ft. wheel, 4-ft. breast, laid on the ground, and ready for erection; the leets were complete; the wheel-pit cleared out for the masons, and only waiting for them to put the necessary masonry to erect same; an adit has been commenced, and driven 80 fms. to hill, through a large body of mica, after which decayed granite; a lode, 16 ft. big, has been intersected in the adit at a depth of 8 fms. from surface, and is chiefly composed of felspar, can, &c.; and from its geological features, there is little doubt of its producing tin and copper, when a change of stratum takes place, which may be expected at a depth of 10 fms. under the present adit, when the stratum above will intersect and unbottle the present one. The price of drivage in the adit is from 35s. to 2L per fm.—good standing ground without timber. There is about 40 fms. further to drive to intersect two promising tin lodes, which will be taken at a depth of 20 fms. from surface, or 12 fms. under the present shaft, which has been sunk between the two tin lodes 8 fathoms, and there intersected; they will come together at a depth of 2 fms. further sinking in the shaft; one lode is 5 ft. big, containing good stones of tin, and underlying about 2 ft. in a fathom—good saving work; the other lode, 3 feet big, underlying to hill about 1 ft. in a fathom, also containing good stones of tin at their junction; there is every probability of this making a rich and productive lode. It seldom fails, where two such promising lodes come together, but that they make abundance of ore. The stratum about the lode is granite, and of that nature which is most congenial to tin; the great advantage in working this lode is, that it will be taking in the adit at a depth of 20 fms. from surface! its course is due east and west, and will be taken on a drage on the course of the lode 150 fms. further to hill, at a depth of 40 fms. from surface, being a gain of nearly a foot on the drage of each fathom. Numerous castaneum pits have been put down, but with no result at present, although there are some very fine lode stones. There is a copper lode, 5 feet big, composed of mundic, can, gossan, &c., cut in the town place, and which is expected to be cut in the castaneum pits every day; there is also another copper lode cut in a sett to the east, and which comes through this sett. Taking the present discoveries made, the stratum, and the advantage of working the mine with the deep adit, together with water-power, there can be little question of this shortly proving, not only a productive, but also a dividend-paying mine. It is in the hands of a London party, who are expending their capital with due discretion. As regards situation, it is only two miles from the Bodmin and Wadebridge Railway, by which all materials can be imported to the mine, and the mineral exported at a trifling expense. I understood the dues were 1-15th, with the usual lease of 21 years, a short time of which has only expired.

BRYN-AR-IAN.—Since I wrote you last, I have seen one of the London shareholders, who promised to come here yesterday to see the mine, but was not able to do so, and I regret it much, as he would have seen stones of ore, varying from 300 to 500 lbs. weight, almost solid, just broken from the back of the deep adit level, full 14 fms. east of the shaft; two shots produced about 2 tons of ore. I have a stone packed up for your inspection, and this morning one of the men brought up some stones from the 10 fm. level east that astonished us all; this level is improving hourly, and of the last shot to-morrow morning I will bring a stone. I firmly believe that, if the stope and the 10 fm. level continue as they are, we may soon expect another sampling of 20 or 30 tons. I am in the highest spirits possible, and, if I could stay here a week longer, I would do so with pleasure, the appearances and improvements are so exciting; and I am sure, if Mr. T. P. Thomas had seen the pile of best ore, he would have been surprised, for no one could have expected it. We shall have a great mine here.

WEALAND ANDERTON.—WEALAND ANDERTON is just the same as last reported; they are preparing another parcel of tin for sale,

Current Prices of Stocks, Shares, & Metals.

MINES.—The transactions during the week have been considerable, and a much larger amount of business might have been transacted, if sellers could have been found; negotiations, however, are still going on for shares in most of our dividend-paying mines, which appear to be in demand for investment.

The third quarter of the current year having expired, on Sunday last, we have in two separate articles, in this day's Journal, given our usual returns of the sales of ores in Cornwall, Swansea, and other parts of Wales, to which we refer with much pleasure, as showing a gradual and encouraging improvement in the returns for copper ores in Cornwall, and, we think, an equally encouraging prospect for the British miner, in the importation of foreign ores sold at Swansea. We trust the improvement, though not great, may prove to be based on real prosperity, and something more than a mere transient rise, brought about by casual circumstances.

The returns of the Board of Trade, for the month ending 5th of Sept., were issued yesterday, and show an increase over the corresponding exports of 1848—1,815,995L The increase on coals and metals have formed a corresponding proportion of this amount, and, upon the whole, the position of our export trade appears highly satisfactory. The following are the exports for the month ended 5th Sept., 1848 and 1849:

	1848.	1849.	Increase.
Coals and cinders	£ 96,458	£ 132,916	£ 36,458
Hardware and cutlery	159,795	224,405	64,610
Metals	674,850	869,353	194,494

Trevikey and Barrier, Tincroft, Stray Park, and Trelawny, have been sought for at advanced prices, and in some of these mines a large number of shares have changed hands.

East Wheal Rose, South Frances, South Bassett, North Pool, and Great Consols are also inquired for.

East Pool is represented as looking very well, and North Pool continues to improve in the bottom level, which is worth from 60L to 70L per fm., and the late discovery in the 24 fm. level is producing 5 tons per fm.

Shares in the following mines have been sold during the week:—East Wheal Rose, South Bassett, Tincroft, Trethane, Trelawny, Mary Ann, Trevikey and Barrier, Mendip Hills, Lewis, Bedford United, Stray Park, Camborne Consols, West Caradon, Birch Tor and Vitter, Devon and Courtenay, and West Providence.

At the Consolidated Mines' account for July and August, the financial statement showed balance in favour of mine of 660L Os. 3d.

At the Tresevean meeting, the accounts were balanced to end of August (being four months), and a balance of 1132L 15s. 6d. was carried to credit of next account.—At the Trehellican account, for the same period, the balance in favour of adventurers was 511L 19s. 2d.—West Trehellican accounts for eight months, to end of August, was balanced, and 63L 16s. 8d. carried to credit of next account.

At the Runnaford Coombe Tin Mine meeting, the accounts showed that the tin sold had realised 171L 4s. 2d., and there was a balance in favour of the mine of 315L 9s. 7d. A call of 5s. per share was made.

At the Tavy Consols meeting, there was a balance against the mine of 102L 10s.; but as 200L worth of ore had been sent to market, part of which was due, and the remainder would be in a month, and the ore being raised would pay costs, no call was necessary.

At the South Wheal Bassett account, the financial statement showed a profit of 123L for the months of July and August, which, added to balance from last account, allowed a dividend of 10s. per share, amounting to 1280L, leaving credit of 519L to next account.

At the annual meeting of Treleigh Consols, the financial statement showed a balance in favour of the company, in cash at bankers, ore bills, &c., of 1383L 8s. 6d. The managing agent represents the mine as very much improved since the last meeting, and entertains the hope, that with the improved standard for copper ore and increase of returns, the profits will be enlarged in the course of a few months.

At the Balnoon Consols meeting, there was a balance against the mine of 235L 1s. 5d.; and a call of 3s. per share was made.

At the Wheal Reeth meeting, there was a balance against the mine of 540L 3s. 2d.; but there were calls unpaid of 242L 5s. 6d.

In foreign mines there has been also a fair proportion of business done, and the following have changed hands, with buyers still in the market:—United Mexican, Copiapo, St. John del Rey, National Brazilian, Ateneu, Imperial Brazilian, Australian, Guadalcanal, &c.

By private letters we learn that some important discovery has been made at Bon Accord (adjoining Burra Burra Mine, in South Australia), one-third part of which belongs to the North British Australasian Company; and a demand, in consequence, has taken place for shares at an advance on former quotations. Official reports are daily expected from the mine.

Letters have been received from the Australian mines to the 24th May. The captain reports that Goad's stades had been productive for April; a cross-cut was being extended from the 40 fm. level, west of Goad's vein, to intersect a lode in that direction, the strata being favourable for copper, when more ore ground is hoped to be laid open. In the 40, north of Harvey's cross-cut, they have a solid lode of ore; its size is not given, but it is very hard, according to the price given for driving (28L per fathom), although it can be stopped away for 18L. In the 40, south of Harvey's cross-cut, the lode is large and strong, but mixed up with iron ore; and the lode is much the same in the 40 north and south of Richards's cross-cut, yet producing favourable appearances of having an improvement at deeper levels; here the lode is also hard, the men having refused to take it at 30L per fm. The total amount of ore raised since the commencement is about 830 tons—470 tons is estimated over 26 per cent., and the remainder (360 tons) from 10 to 15 per cent. produce.

The Bolanos Company have received their dispatches, which were missed by the last mail, and have arrived via United States. The accounts from El Bote Mine, which will be found in another column, appear to be quite as encouraging as could be expected, considering that every work of trial is suspended, waiting the supply of capital from England. Letters mention that a company is forming in Zacatecas with a capital of 60,000L, to work the old mine of Queradilla, and that a large portion of the shares are already taken. This mine is only a short distance from El Bote, and as the lodes in the former are the same as those which traverse the latter, there is no doubt but that the success, and the high opinion formed of El Bote, in Zacatecas, have stimulated the formation of this new company. The Bolanos shareholders will, therefore, do well to consider their position; time is progressing, and there is every reason to believe that if they allow the Bote Mine to slip through their fingers, they (when too late, and when they see others reaping the fruits, and laughing in their sleeves) will bitterly repent it.

The National Brazilian letters have been received to 28th July; the prospects continuing as encouraging as former advice; Cocaoes proving productive, with probability of improvement; the produce from that mine from the 8th July to the 28th amounting to mks. 55. 1. 7. 48. Advices were received yesterday by the Seagull, with a remittance of 1800L: the returns were—Cocaoes to 8th of August, mks. 10. 0. 1. 42; Ceiauba to 26th July, mks. 1. 8. 3. 18—11. 3. 4. 60.

The Imperial Brazilian Company have received the gold report, but no letters, by this packet. Gongy produce from July 13 to August 2, 12 lbs. 1 oz. 3 dwts.; Banana ditto, 6 lbs. 10 ozs. 12 dwts.—18 lbs. 11 ozs. 15 dwts.

The St. John del Rey advices are to 28th July, giving the returns of 20 days' stamping at 14,091 oitavas.

The accounts received by the United Mexican Mining Association are very favourable, and fully confirm those previously received, as to the future prospects of the shareholders. The most productive point, both in gold and silver, is now verging on the company's new mine of Promotorio, and, consequently, holding out every promise that that property will prove equally valuable.

Despatches have been received by the Copiapo Mining Company, with returns for the month of July, the copper amounting to 61 tons. A remittance of 1510 mcs. of platinum pina, and 420 castellano 5 tonnes of gold, in one ingot, has also been received, amounting to about 3600L value. The copper mines continue highly promising; at Checo they have a rich course of ore in the 20 fm. level, with other good lodes; San Pedro produces good ore, and La Compania, just opened, has produced one of 35 per cent. produce. The silver mines of Al Fin Hailada had 5000 mcs. of ore expected to be taken down in a few days. Sal Jose del Carmen, Carmen Alto, Plomizosa, Merceditas, and a new adventure, Santa Ana, were all promising. The gold mine of Descabredora had improved; about 6 tons of stone had produced 90 ozs. of gold. The Santa Domingo, Chacabuco, and Esperanza, are also represented as producing beautiful specimens of gold.

The Royal Mail steamship, Medway, arrived on Monday, with the usual foreign and West India mails, and bringing on freight gold coin and gold dust to the value of 860L 91s. 14d. silver bars, 255L 13s.; platinum, 95L; precious stones, 450L; and 202,194L sterling. The Peninsular and Oriental steamship, Agave, arrived on Wednesday, bringing the heavy portion of the East India and China mails, and on freight 64 packages of specie, value 14,000L sterling. The same company's steamship, Beria, arrived on Thursday morning, bringing on freight eight packages of specie, and a general cargo of merchandise. Her Majesty's packet, Seagull, arrived at Falmouth on Thursday with the Brazilian mails, having on freight about 24,000L in specie.

HULL, THURSDAY.—We have no change of moment to report in the share trade. Hull and Selby, Eastern Counties, and East Lancashire shares are rather better, while for York and North Midland and Brighton there is more inquiry. Canal shares, after a long period of neglect, are more sought after.

PRICES OF MINING SHARES.

BRITISH MINES.				BRITISH MINES—continued.			
Shares.	Company.	Paid.	Price.	Shares.	Company.	Paid.	Price.
1000 Aberglaslyn	9	4	2048 Runnaford Coombe Tin	1	5	1	5
1021 Alfred Consols	82	71 1	9000 South Tamaz	2	12 1		
1005 Anthony Silver-Lead	5	—	125 South Caradon	5	308 300		
1024 Amburton United Mined	82	12	1100 South Doleca	5	—		
1024 Ballewshouse	9	18	256 St. Michael's Friend. Wh. Ann	30	20		
128 Banbury Consols	82	60	256 South Molton	5	13 15		
1000 Barrisford	52	12	256 South Tolgus	16	55 60		
3500 Bawden	5	8	256 South Trevallyn	28	4		
4000 Bedfont	23	32 3	2000 South Wales Mining Co.	4	1 12		
1280 Birch Tor & Vitter	102	6	128 South Wheal Bassett	204 342 300			
800 Blaenau	50	10	124 South Wh. Frances	169	250		
5000 Blisland Consols	1	5	125 South Wh. Josiah	14	5 6		
1000 Botallack	182	25	1000 South Wh. Maria	21	12		
120 Brewster	5	6	10400 Southern & Western Irish	24	4		
250 Brimpts Tin	24	3 42	280 Sheepoor Moor	30	40		
1000 British Iron, New Regis	12	—	94 St. Ives Consols	—	80		
Ditto ditto, scrip	10	—	128 St. Michael Peakevick	5	10 1		
2400 Brymbo	2	6	9000 St. Minver Consols	1	6		
120 Buckland Consols	52	10	1000 Stray Park	43	20		
1000 Caddington	22	5 6	9000 Tavistock Consols	3	74 8		
1000 Camborne Consols	7	42 6	1024 Tavistock Consols	5	4 5		
2000 Cameron's Susan Coal	7	1	1024 Tavy Consols	62	12		
3500 Carron Copper Mine	92	13	1000 Trecroft	170	10		
2500 Caron United	22	10	256 Trengorven	31	5 54		
1000 Carn Brea	18	195	125 Trethane	12	25 25		
114 Charlestown	220	—	96 Tresevean	10	95		
500 Coblyn	5	44	120 Trethellan	5	15 16		
250 Condor	45	65 70	120 Trevikey and Barri	130	120 125		
250 Conduffrow	20	65 70	1000 Tyllwyd	2	24		
250 Cook's Kitchen	14	2 3	200 Limited Mines	50	150		
1000 Coonan Valley Quarry	41	5	256 Wellington Mine	25	35		
1000 Copper Belmont	13	6	128 West Buller	10	300 323		
500 Court Grange	5	10	256 West Caradon	20	108 110		
212 Craddock Moor	234	5	512 West Fowey Consols	40	12		
120 Creig Daws	120	39	West Par Consols	24	—		
500 Cubert Mine	124	—	256 West Providence	9	26 27		
1000 Cwm Euan	31	3 34	209 West Seton	45	175 180		
1100 Derwent	8	—	120 West Trethellan	5	—		
845 Devon & Courtney Con.	45	12 12	512 West Wheal Frances	13	—		
1024 Devon Great Consols	1	200 200	256 West Wh. Friendship	9	—		
1000 Diorwedd	2	5	125 West Wheal Jewel	12	1 1 1		
1500 Dolcoath	30	13	256 West Wheal Tolgus	80	74 10		
500 Drake Walls	52	3 4	256 West Wheal Treasury	19	5 74		
1000 Durban County Coal	15	5	1024 Whidbush Mines	42	2		
3000 Dyngwyn	19	10 12	5200 Wicklow Copper	5	84 8		
512 East Alvernon	51	6	1000 Wheat Adams	79	49		
2000 East Birth For.	3	—	256 Wheat Agar	10	—		
1024 East Birth	1	4	256 Wheat Albert	10	—		
122 East Caradon	47	47	240 Wheat Anderton	28	10 15		
2048 East Crowndale	62	4	128 Wheat Ann	5	504		
128 East Fowey	15	6	512 Wheat Anna Maria	7	—		
4000 East Fowey Consols	12	14	1024 Wheat Lawrence	24	2 2		
2500 East Gloucester	442	19	112 Wheat Margarett	79	22 25		
128 East Gwenvre	4	2	512 Wheat Mary Ann	5	—		
1024 East Great Consols	1	200 200	5000 Wheat May	5	25 27		
1000 Great Consols	1000	200	3500 Wheat Oak	5	—		
512 Gt. Wh. Hough Ton Con.	244	18 20	2000 Wheat Pendle	8	9		
6000 Grova	5	5	1000 Wheat Penrice	4	—		
2000 Hilditch Down Col.	12	2	1000 Wheat Pendarves	21	—		
1500 Hennock Silver-Lead	21	—	1000 Wheat Pendarves	21	—		
4500 Hennock Irish & Tu.	21	21	1000 Wheat Penrice	21	—		
2500 Her							

NOTICES TO CORRESPONDENTS.

* We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

An Intending Patentee (Leeds) should apply to Mr. Campin, of the Patent Office, 210, Strand, who will forward an official circular of information, with scale of charges, and give any further information which may be required, on application.

F. M. (Ashton).—Zinc, either common or amalgamated, is almost always used as the positive metal of the battery, but since common zinc is subject to ordinary chemical action, and likewise, on account of alloys mixed with it, to local galvanic action, and since these actions continue even when the circuit is open, a great deal of zinc and acid are uselessly consumed. By the use of amalgamated zinc, first introduced by Sturgeon, this loss is avoided. With this kind of zinc, however, the current is soon reduced to 1/8th or 1/10th of its original strength, because no gas is evolved on the zinc, and, consequently, the acid does not get well mixed; but, on breaking contact for awhile, the current regains its former power. Rolled zinc plates are preferable to those of cast zinc, which are less pure. New plates act better than such as have been used two or three times, perhaps because the alloy comes out more prominently as the surface dissolves, and thus give rise to local galvanic action. This deterioration of zinc plates by use soon reaches its limit in the case of rolled zinc, but with cast plates it goes on continually. The more smoothly the plates are rubbed, the better they work. For the negative metal, copper, iron, lead, silver, platinized silver, platinum, graphite, or peroxide of lead, may be used. These observations are principally gathered from Professor Faraday's remarks.

E. J. C. (Broad-street).—The German Miners' lamp, used in Saxony, is very simple; it is generally formed of a brass globe, about 3 inches diameter, which fits on an iron ball in a lantern; this is made of wood, and cased with tin, which serves as a reflector; the front, from which the light is emitted, is entirely open. The superintendents' lamps do not differ much from the labourers', only inasmuch as they have a glass door, and are lined with brass, instead of tin.

An Engineering Pupil (Greenwich).—In Buck's railway chairs, the wedge is driven against the rail by a vertical key. Another sort of chair is made, in which an iron ball takes against the rail, and is keyed close up to it by a longitudinal key. The joint chair is laid down, not at right angles with the rails, but diagonally, and is cast with a split end, rather smaller than the rail; it has, therefore, to be clipped to get the rail in. There is, however, a great loss on these chairs, through their being made of cast-iron, which occasions great numbers to be broken in fixing and keying. To prevent this, wrought-iron chairs are made, by rolling the iron into the required form in lengths, then cutting up the lengths into chairs by shears, after which they may be drilled and completed.

Thomas Bradley (Leith).—The work was published in 1822; it is entitled, "Macadam's Remarks on the Present System of Road Making; with Observations, deduced from Practice and Experience, with a view to a Revision of the Existing Laws, and Introduction of Improvement in the Method of Making, Repairing, and Preserving Roads, and Defending the Road Funds from Misapplication."

"Electricus" (Liverpool).—Electrical bells are used in a variety of entertaining experiments by electricians. The apparatus, which is originally of German invention, consists of three small bells suspended from a narrow plate of metal, the two outermost by chains, and that in the middle, from which a chain passes to the floor, by a single string. Two small knobs of brass are also suspended by silk strings, one on each side of the bell in the middle, which serve for clappers. When this apparatus is connected with an electrified conductor, the outermost bells, suspended by the chains, will be charged, attract the clappers, and be struck by them. The clappers, becoming electrified, will likewise be repelled by these bells, and attracted by the middle bell, and discharge themselves upon it by means of the chain extending to the floor; after this they will again be attracted by the outermost bells, and thus, by striking the bells alternately, occasion a ringing which may be continued at pleasure. Flashes of light will be seen in the dark between the bells and clappers, and if the electrification be strong, the discharge will be made without actual contact, and the ringing will cease. An apparatus of this kind, connected with one of those conductors which are erected for protecting buildings from lightning, will serve to give notice of the approach and passage of an electrical cloud.

An Enquirer (Southampton).—Almagra is a fine deep red ochre, with some admixture of purple, very heavy, and of a dense yet friable structure, and rough dusty surface. It adheres very firmly to the tongue, melts freely and easily in the mouth, is of an austere and strongly astringent taste, and stains the skin on touching. It is the *Sul Atticum* of the ancients. It ferments very violently with the acid menstruum, by which single quality it is sufficiently distinguished from the *Sul Syriacus*, to which it has in many respects a great affinity. It is found in immense quantities in many parts of Spain, and in Andalusia there are, in a manner, whole mountains of it. It is used in painting, and in medicine as an astringent.

G. B. (Penzance).—In several parts of France gold has been found, although in exceeding small quantities. In the year 1781, a vein was discovered at Gardette, in the valley of Oysans, department of the Isère. This vein consisted of quartz, which traverses a gneiss mountain, and contained auriferous sulphure of iron, besides some specimens of native gold, but the quantity obtained was found insufficient to repay the expense of operations. Many of the rivers, as the Rhone, the Rhiine, the Garonne, and others of small note, furnish auriferous sand. Veins of auriferous sulphure of iron, traversing gneiss rocks, have been discovered at the foot of Mount Rosa, in Piedmont; and the sands of some of the rivers, as well as various parts of the soil, on the south side of the Alpine mountains, are likewise auriferous.

L. M. (Cornhill).—The spring from which the Seltzer water is supplied, is situated at Nieder Seifers, in the duchy of Nassau. The duke is the proprietor. It is said to have been purchased by one of his ancestors for a butt of wine. About 1,000,000 of large, and 2,500,000 of small bottles, are annually filled from the spring, and sealed for exportation. The profit is said to be about 50,000 per annum, clear of all expenses.

George Jones (Blackfriars).—The Leeds and Liverpool Canal commences at Leeds-bridge, where it unites with the Aire and Calder Navigation, and terminates at North Laird's Walk, Liverpool, a distance of 127 1/2 miles. In the course of 41 miles, from Leeds to the summit level near Greenbankfield, the total rise is 411 feet, from the summit near Colne to the basin at Liverpool there is a fall of 433 feet, and from the basin to low water on the Mersey the fall is 56 feet. Of this line of navigation, 11 miles, from Cophurst to Kirkless, is the property of the Lancaster Canal Company. The great tunnel of Fourdrill is 1640 yards long, 18 feet high, and 27 feet wide. At Bingley, a connected series of five locks effect the enormous lift of 83 1/2 feet, which often occasions a great waste of water. This canal was 46 years in hand—being begun in 1770, and finished in 1816.

L. H. (Manchester).—The communication on the management of the Christians Gas Company is much too lengthy for insertion. As the majority of the shareholders are Norwegians, no doubt the statutes of the company are framed according to the laws of that country. This appears to be one of the too many instances in which English capitalists embark in foreign undertakings without clearly understanding their rights, and the duties and responsibilities attached to the speculation; and find, when too late, that their money, which might have been profitably laid out in England, has been expended to enrich foreigners.

T. C. S. (Baker-street).—The aqueduct of Alcantara, in Lisbon, reaches from one hill to the other; it has 35 arches, the largest of which is 107 feet wide, and 230 feet high: it was constructed of white marble in 1732, by the architect Manuel de Maga. It was built so strongly, that it resisted the great earthquake of 1755.

"Miner" (Cambridge).—Dolomite, or magnesian limestone, occurs massive, and has sometimes a silty texture; it consists of fine crystalline grains, which are lamellar—generally white, occasionally with a tinge of yellow or grey; is translucent on the edges, and when struck frequently emits a phosphorescent light, which is visible in the dark; it greatly resembles primitive limestone, but is readily distinguished by its feeble effervescence in acid. It occurs in the Pyrenees, Saxony, France, Sweden, Iona, and in an impure state in many counties of England—Somersetshire, Yorkshire, &c. Near Sunderland it forms globular, earthy-like, concretions; in the same vicinity it is found in silty masses, which, when split in thin pieces, are very flexible—a quality supposed to depend on the water it contains, as it is nearly lost when the mineral dries. Guroffion, which is a variety, is of a snow-white colour, and very compact; the fragments, which are sharp, are translucent on the edges—fracture flat conchoidal. It is often taken for semi-opal. It occurs in veins traversing serpentine, between Garhof and Aggsbach, in Lower Austria. The mortar obtained from this species is esteemed for cement, being less subject to decay, owing to its absorbing less carbonic acid from the atmosphere than common limestone. For agricultural purposes it is of inferior value; when laid on particular soils, it tends to injure, rather than improve, vegetation; this effect is owing to the magnesia it contains. The cathedral of Milan, the Minster and city walls of York, are built of magnesian limestone; the white marble of Pares, and that of Fons, in the Hebrides, belong to this species; it, therefore, often admits, as well as limestone, of being cut and polished, and is supposed to be particularly durable.

A Secretary (Old Broad-street).—Arsenic, cobalt, and various other minerals, are found in the county of Cumberland; some mines were formerly worked at Black Combe, which, we understand, are likely to be recommended.

B. Byles (Durham).—Sir John Herschell has obtained some remarkable results by exposing thin writing paper, blackened on one side by holding it over a smoky flame, and afterwards thoroughly wetted with alcohol, applied to the unsmoked side, to the action of the solar spectrum. The influence of the calorific rays was shown by whitening of the paper, marking, by a clear and sharp outline, the lateral margins of these rays; and, by due gradations of intensity in a longitudinal direction, their law or scale of distribution, both within and without the luminous spectrum. The thermic spectrum, thus impressed, extended from the middle of the violet to a distance considerably beyond the red; moreover, it was found to consist of a number of distinct patches, the brightest of which were situated within and just beyond the visible red rays. Three other spots subsequently come in view, at continually greater distances from the visible spectrum, and successively diminishing in brightness. This want of continuity in the thermic spectrum, and the consequent effect in the atmosphere of the sun, or of the earth, or both. If such absorptive action be exerted by the earth's atmosphere, it will follow that a large portion of the solar heat never reaches the earth's surface at all; and that the least incident on the summits of the lofty mountains differs, not only in quantity, but also in quality, from that which the plains receive.

A Constant Reader (Leamington).—The largest piece of native copper is in the Royal Cabinet of Natural History at Ajuda, in Portugal. It was found in the Brazils, and is said to be of the enormous weight of 2616 lbs.

J. M. (Brighton).—A report on the Gellivara iron mountain was made by order of the Swedish Iron Masters' Association, and published in their Annals for 1819. In this it is stated, "that all the fissures, from the top to the foot of the mountain, contain rich iron ore; and every part of this vast rock having been examined, it is fully believed that the Gellivara mountain consists of one entire mass of rich iron ore. The analysis of the ore gave from 68 to 72 per cent. It is, however, so far distant from the sea, that without a railroad, or other means of artificial transit, its treasures are unavailable."

A. Mole (Liskeard).—A man above 21 years of age is not bound by any agreement entered into, and signed by him, previously, or, in legal phraseology, while he is an "infant"; nor would a clause in an apprentice's indenture bind him to any acts of either omission, or commission, in after-life. If the guardians have bound themselves to any particular acts of the apprentice, the party considering himself aggrieved should look to them; but unless the terms of the agreement were very definite, and penalties attached, we should think it would be difficult to establish a case. In the present "go-ahead" age of free trade and liberality, the old ideas of exclusiveness in business, in ancient times looked upon as so sacred, are now regarded with anything but favour.

J. P. (Newcastle-on-Tyne).—An excellent recipe for lubricating greases will be found in another column. There are a variety of methods of compounding it, but we should think the kind indicated, if well made, would be very serviceable. We should imagine the grease mentioned turning black, proves it to be made of bad materials.

R. B. (Rodney-terrace, Bow-road).—We have made inquiries, and find that West Providence shares cannot be obtained under the quotation this day in our list, 26-27; the quotation, 20-21, was forwarded us by a broker, whose name we have sent to our correspondent.

SOUTH WHIRLPOOL JOURNAL.—We have received a further communication from "Jacobi Vox," to which we are precluded giving insertion, "from the personalities in which the writer indulges, and, at the same time, appending to his letter the anonymous signature. This we do not think is fair, although the writer may be known to us; yet it is not honest to fire at the enemy from a masked battery." The letters which appeared in the Journal last week, with one exception, had the names of the writers attached. We admire candour and openness, and "Jacobi Vox" will allow his name to be subscribed to his letter, such shall appear in our next Number. It is only right to observe, that the writer reiterates the statements which appeared in his letter of 29th Sept.; and, furthermore, furnishes a report from a practical agent, whom he had commissioned to examine the mine, which is a sad story indeed, but the agent's name not being given, we must, for reasons already assigned, and which will, doubtless, be well understood and appreciated by the writer, decline to insert reports which, however they may be based in truth, are anonymous. If "Jacobi Vox" be an adventurer—and we presume such to be the case, or he not depict an agent to report for his own private information—then the question arises—why does he use his utmost efforts to destroy the property, and injure his co-adventurers as well as himself? If that he is not an adventurer, then it might be implied he is actuated by some personal feelings, except that he, perhaps, forms an exception, and is solely actuated by his *amour propre* of exposing abuses. We await "Jacobi Vox's" reply—*vox et preterea nihil*.

Anti-Flash.—This is another letter on the subject of the Wheal Josiah Mine, but does not contain anything new. If the writer will authorise us to append his name to his letter, like that of "Jacobi Vox," shall appear. It is a pity that time and space should be occupied in personalities. When abuses exist, we repeat let them be exposed; but as Capt. Hamblin, and others, have written in their own name, it is dastardly and unfair to attempt replies without attaching the signature. Capt. Hamblin boldly challenges "Jacobi Vox," or others, to inspect the mine. It is true that a report has been forwarded us by that gentleman, and even with his own name it shall have insertion, if that be permitted.

The New Locomotive Engine.—In the letter of "Erebus," in last week's Journal—"I would here refer to an account published long ago in the *Mechanics' Magazine*," ought to be "not very long ago."

ASTURIAN MINING COMPANY.—The writer of the letter, signed "A Victim," omitted to append his name and address—see first Notice.

W. H. C. (Paddington).—Our correspondent's remarks on cholera are written in a good spirit, and we bear willing testimony to their correctness—bad water, bad drainage, bad food, and want of cleanliness are, doubtless, the disposing causes to this disease, but we fear little is to be expected from Government or Commissions, and that, to make sure of any really good measures being adopted, the people must take the matter into their own hands, and have recourse to the "pressure from without." The communication is, however, on a subject rather unsuited to our columns, or we should have had pleasure in inserting so excellently-written a paper.

The Cost-Book System.—An elaborate and explanatory paper on this subject will appear in our next Journal.

B. C. (Paddington).—The Schneeburg is 5300 feet high; the Sturmhaube 5100 feet. They are both situated in the Reisengebirge, which is a range of mountains in the dominions of Prussia and Austria.

* It is particularly requested that all communications may be addressed—

TO THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, OCTOBER 6, 1849.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

We present our readers to-day with our customary detailed statement of the sales of copper ore in Cornwall, for the quarter ending 30th September. It will be seen that, in however trifling a degree, there is still some improvement in the miners' favour. This has been wholly effected by the increased price given for the September sales; the features of the account, for the first two months of the quarter, showing a state of things which, had it continued for the remaining month, would have placed the business of the quarter, in all respects, except quantity, below the previous one.

ACCOUNT OF THE SALES OF COPPER ORES IN CORNWALL,
IN THE QUARTER ENDING SEPTEMBER 30, 1849.

Date of Sale.	Average Stand.	Average Produce.	Average Prices.	Quantity of Ore.	Computed Quantity of Fine Copper.	Amount of Sales.	Value of Ore to produce 1 ton of Copper.
	£ s. d.	d. cent.	£ s. d.	21 cwt.	Tons cwt.	£ s. d.	£ s. d.
July	96 17 0	72	4 13 0	3598	274 6	16,679 0 6	60 16 1
"	94 9 0	8	5 10 6	2538	221 2	13,913 5 0	62 18 6
"	91 11 0	10	6 9 0	2115	212 14	13,662 17 0	64 4 8
"	100 0 0	72	4 10 6	3628	264 6	16,473 4 6	62 6 7
August ...	98 14 0	72	4 8 0	3881	280 15	17,037 2 6	60 13 8
"	95 19 0	8	5 10 6	2595	224 2	14,368 0 6	64 1 10
No sale on 16	—	—	—	—	—	—	—
August	94 1 0	96	6 2 6	3041	296 19	18,624 9 6	62 14 5
"	108 2 0	68	3 18 0	3977	183 0	11,959 15 6	63 2 3
September ..	103 3 0	72	5 8 0	3801	300 10	20,549 12 6	68 7 8
"	103 16 0	8	5 16 6	3877	220 16	15,563 15 6	70 9 9
"	99 17 0	98	6 14 0	2467	233 0	16,473 3 0	70 14 2
"	106 10 0	72	5 2 6	3790	281 7	19,534 5 6	60 10 0
Totals & avg. for quarter	97 14 1	8'066	5 4 10	37,103	2992 17	194,495 11 6	64 19 9
Ditto quarter ending 30th June	98 16 2	7'935	5 2 2	36,631	296 14	187,167 15 6	64 7 10
Ditto quarter ending 31st March	9'261	5 4 5	36,093	2981 11	188,507 0 6	63 4 6	
Ditto quarter ending 31st Dec., 1849	89 7 1	8'564	4 18 4	35,972	3080 8	176,833 0 6	57 8 3
Ditto for year ending 30th Sept., 1849	—	8'204	5 2 6	145,799	11961 10	747,003 8 0	62 9 0
Av. quarterly quantities & amounts for the last year	—	—	—	36,450	2990 7	186,750 17 0	—
Averages of 16 years ending June 30, 1833, to June 30, 1849	—	7'803	5 16 8	147,175	11484 0	858,730 0 0	74 15 6

The several lines following the particulars of the quarter's sales show the state of affairs for each of the three preceding quarters—for the year now concluded, with the quarterly averages of the year, and the yearly averages of the preceding sixteen years.

The quantity of ore raised last quarter, it will be seen, exceeded that of the previous one by 472 tons, the copper by 86 tons, and the amount by 7327. And it exceeded the quarterly average of the whole year, by 635 tons of ore, but only 2 1/2 tons of copper, and 7451 in money. This apparent discrepancy between the quantity of fine copper in one case and the other is explained by the fact, that whilst the produce per cent, as well as the quantity of ore, exceeded in the last quarter those of the preceding three months, yet, although the quantity of ore was also above the average of the four quarters, the produce was 0 138 per cent. below the general average of the year, being 8'066 against 8'204—thus bringing the quantity of fine copper, for the two periods, so nearly equal.

The trifling advance in the average price of ore in the last quarter, as compared with that of the preceding one, being only 1s. 11d. per ton, may be regarded as but the same; since the increased produce of 8'066 against 7'935 is equivalent to 1s. 8

ing order by the proprietor or ironmaster, at the commencement of the first working contract, and a correct valuation inventory duly taken of everything committed to the charge of the company in question—viz.: stocks, plant, buildings, machinery, &c.—the working company then to keep all things in due order and repair, and deliver the same, as per inventory and valuation, up to the proprietor or ironmaster at the final end of the contract. All old castings, and other surplus materials, to be sold at a fair valuation to some of the other working companies, or to the ironmaster, but not to the public generally; and unfinished results to be delivered over to the custody of other companies, or to the ironmaster, or his general manager, at agreed-upon prices, weekly or monthly, according to their several natures and qualities:

Bar-Iron, No. 2, at	per ton	Hoops, at	per ton
Ditto, No. 3	"	Wire rod	"
Balls	"	Nail rods	"
Flats	"	Sheet-iron	"
Bolts	"	Steel-iron and steel	"
Rods	"	Special orders, per agreement.	

Iron cinders and old castings to furnace company, at — per ton.

Refuse ashes of puddling fires, &c. at — per dozen barrows.

Smiths' work, masons' work, fitting and engine work, roll turnings, carpentry, hauling, &c., all to be done by agreement, with the managers or sub-managers of those several pursuits; thus safely arriving at the exact cost of every finished result, as well in this, as in every other department of the general concern.

All necessary extensions to be at the expense of the ironmaster, in this and every other department of the work; but the several working companies to keep all such extensions in good order and repair. All engine boilers to be worked with the spare heat of puddling and balling-furnaces, if any way possible; contracts in proportion. There are no difficulties in raising steam from the spare heat of the furnaces just mentioned, but what may be readily overcome by experienced managers of "iron mills and forges." It must be confessed, that many unsuccessful attempts have been made of so applying the "spare heat" in question; but, on a critical examination into such disappointments, I have invariably found them to arise from the adoption of hasty, careless, or unscientific arrangements alone.

All additions, or improvements, for the convenience of the several working companies, to be made at their expense respectively; and such additions to be removed at the final end of contracts, if the ironmaster, or proprietor of the works, should decline to take to them at a fair or satisfactory valuation.

The Rev. Dr. Robinson, the new president of the British Association for the Advancement of Science, at the late meeting at Birmingham, alluded at great length to the benefits science had conferred on the useful arts; as an instance, "the production of IRON," he said, "had been increased six-fold since the invention of *puddling-furnaces* and the *hot-blast*." I have made this slight extract from the report of the Birmingham meeting, in order to show how far *puddling-furnaces* have been instrumental in increasing the make of iron. By Mr. Cort's invention of the puddling-furnace, an ironmaster was enabled to augment his make of iron from 3 or 4 to 8 tons per week from one fire; this, of course, was a great and important improvement in the iron trade; but whether Mr. Cort gained anything by his invention—an invention that doubled, in manner, the production of iron in any given time—I have never heard, except in rumours of a negative character. Mr. Neilson (of "hot-blast" memory) is, I believe, the only person who ever reaped a "good reward" for the introduction of improvements in iron metallurgy! Puddling-furnaces have, however, been so improved, as to enable the workman to turn out three times the quantity of iron that could be obtained from them in Mr. Cort's time; for, before the introduction of *iron bottoms* to them, eight tons of iron per week was about the yield of a furnace, which now produces twenty-four! Here, then, we have an improvement opened to the trade that has trebled the manufacture of iron, and considerably improved its quality, with a great saving of both iron and coal—an invention that has been adopted throughout the world, as it were, and yet not the slightest notice has been taken of the person who, thirty years ago, laid out considerable sums of money, and spent many anxious years, in endeavouring to bring the invention under the notice and patronage of those who may now not improperly be termed the "old ironmasters of Monmouthshire and South Wales." Perhaps I am wrong in saying that no notice has been taken of the inventor of this important improvement in the puddling-furnace, because there has been three kinds of notices acted upon—viz.: 1. He (the inventor in question) had the honour, at the time above alluded to, to be distinguished, and was very well known about the iron-works just referred to, by the expressive name of *Mr. Ironbottom*! 2. He was considered by several very large ironmasters (many of whom are now alive, and therefore may be referred to) as a person who aimed at inducing them to attempt a complete impossibility—and 3. He has had the honour and the profit of being patronised by one iron-making firm alone, out of the many that have, without either leave or ceremony, availed themselves of "their neighbour's services," by the adoption of the invention in question—an invention that has enabled many iron-making concerns to realise, as it were, the "power and might of kings, and the wealth of princes;" it has, at the same time, been the cause whereby millions of tons of fuel have been saved to the nation at large, and to thousands of people individually—a "firm" that has, in many other instances, given strong and tangible proofs of gratitude to those by whose scientific labours the iron trade has been brought to its present high position in the affairs of the world.

In the above remarks I have written as a third person, in terms, however, easily understood. Now at the time (1818), I proposed iron bottoms to puddling-furnaces, I fully explained how *blast furnaces* may be made to yield, without the aid of hot-blast, triple their usual yield of pig-iron, which, at the time referred to, was about 60 tons per week; and the only reason why this other great improvement in iron metallurgy was never carried out, or indeed fairly attempted, was this—to do so would require the aid of men trained to systematically and scientifically conduct and control blast-furnace operations (the most critical points in iron-making)—parties not to be raised up in a day, or a month, as it were, and hence not immediately at hand for the use of the ironmaster. Here was the difficulty, and the cause why my propositions for the improvement, if not the perfection, of blast-furnace operations were never realised; but these difficulties did not exist in the application of iron bottoms to puddling-furnaces, for, in this case, there was scarcely any need of head work to put it in successful action. It was an invention, therefore, soon and easily put in practice, and, consequently, in a very short period of time, it became generally adopted throughout the iron trade. But, to carry out the smelting improvements required the stubborn facts of science to be applied with careful, but firm and vigorous, hands. At this point ironmasters have, even up to the present day, made a complete stand, apparently contented (if contentment may be found with bar-iron at 5*t* per ton) to use no other than brute force, in a manner, for the accomplishment of strictly chemical, and, therefore, in a high degree mental, operations. The results are seriously to be deplored, for a number of reasons, one alone I will mention—i.e., the absolute and current waste, and total loss of millions of tons of coal annually.

4. WORKING COMPANY OF SMITHS, ROLL TURNERS, FITTERS, ENGINEERS, BOILER-MAKERS, &c.—The different branches of this company to be under the care and management of *sub-managers* and *overseers*, similar to the "mill and forge" company. All required materials to be bought of the other working companies, at the fixed prices before alluded to, or of the general store of the ironmaster; and all refuse or surplus to be sold or exchanged monthly. The labour, talent, and finished results of this company to be supplied by contracts for time, or special jobs, according as the managing committees of the several working companies may determine from time to time, or for a whole year.

5. COMPANY OF MASON, BRICKMAKERS, TILERS, CARPENTERS, PATTERN-MAKERS, &c.—One manager for the entire company, and sub-managers, &c., for the different departments, with sub-committees of management also, if desirable. All raw and other required materials, tools, &c., to be supplied at cost price from the general store of the ironmaster, or other of the working companies; and all labour, talent, &c., to be remunerated on the same principle as proposed for the company of *smiths*, &c. By these arrangements, the very best use will be made of all articles, tools, machines, and labour necessary or desirable for carrying on the works, generally and particularly, be it ever so complicated or extensive—so that all waste of either labour, time, or material would be effectually and radi-cally avoided—points which NEVER can be realised under any other system of management than what is herein proposed.

GENERAL STORE.—The general store-yard of the ironmaster should contain due supplies of everything necessary or desirable for effectually carrying on every department of the concern, all of which articles to be supplied to the several working companies at the lowest possible price, to cover the expenses of the "yard"; this will be necessary, in order that all

finished results should be delivered to the ironmaster at lowest contract prices also. The store-keeper (who, together with his assistants, to be appointed and paid by the ironmaster exclusively) to be made answerable for all stocks delivered into his possession; and invoices of all purchases and sales to be given in to general office, weekly or monthly.

TRANSFER-BOOKS.—The ironmaster, or his general manager, to keep transfer-*ledgers* in his office, one for each working company, to be used somewhat thus:—1. A mining company's ledger, in which all the mining results to be delivered over, per invoice, to the custody of the ironmaster monthly; and such results to be passed to the debit of those working companies requiring them severally.—2. The same with the "furnace" company.—3. Ditto "mills and forges" company.—4. Ditto "smiths" company.—5. Ditto "masons" company, &c. By this arrangement all raw, unfinished, and finished results would be continually, as it were, in the custody of the ironmaster; and all losses would fall exclusively upon the members and funds of the several working companies, should any occur, whether of time or material; and the ironmaster would have only five accounts to settle monthly, instead of perhaps 500 or 1000.

BOARDING AND LODGING-HOUSES.—It would be very desirable to institute at large iron-works an extensive boarding and lodging-house, on economical and temperance principles, so as to put ironmasters in a position to readily attain due and instant supplies of common and other labour, when demand requires. This establishment to be built and fitted up by the proprietors of the general work; tenants to pay a fair rental for the same, and keep all things in due order and repair. Labourers, and others requiring employment, would then have a respectable "house of call" at the several iron-works that would afford them great conveniences, with comparatively very low charges, as well for food, drink, or lodgings; tables of which "charges" to be publicly exhibited in all the public rooms of the establishment, together with "rules and regulations" for the conduct of boarders, and others also. Registered members of these houses always to have first chances for employment; registering fee, say 1*d*. per week, or more. No ale, beer, spirits, or other fermented liquors, to be sold at these houses, except small beer, ginger beer, lemonade, prepared milks, &c.

BEER-HOUSES to be discontinued entirely about the reformed iron-works, and PUBLIC-HOUSES only sparingly licensed. No member (or wife of member) of the proposed working companies to keep such licensed houses. "It is scarcely possible that facilities and invitations for drinking can abound more than they do in our large provincial towns"—the writer of this remark, in the *Lao Magazine*, is evidently not aware of the temptation and invitations for drinking that are held out at the numerous beer-houses about iron-works, it may truly be said to be awful!

MARKETS OR BAZAARS.—An ironmaster would confer a great benefit upon his workmen, and their families, by instituting a convenient and good market (on the bazaar principle) for the supply of most of the necessities of life, under just and reasonable conditions, to be publicly promulgated and strictly enforced, to the effect that all attempts at obtaining extortionate prices for things, or exposing bad goods of any description for sale, using short weights or measures, or taking undue advantage of children or inexperienced persons, should be punished by fines (payable into the "casualty fund" before mentioned), or loss of standing in the market. The rents of such an institution would pay at least 10 per cent. interest for the cost of its erection. This is a point entitled to the serious attention and best patronage of every considerate ironmaster, for the better his workmen can be supplied with the necessities and conveniences of life, on any scale of wages, but particularly low ones, the better will they be able to perform the several duties to their employers, and so turn out all desired results at lowest possible cost; it is, therefore, manifestly the interest of an ironmaster to institute, and spiritedly maintain, a good public market, with "conditions" as above proposed; and that in preference to the adoption of "company's shops," as certain monopolies are frequently termed, institutions of very equivocal benefit to an ironmaster, although sometimes of manifest and serious injury to many of his workmen (honourable exceptions, of course, there are), upon whose healthful labour he (the ironmaster) must principally depend for success in his extensive and arduous undertakings.

RECAPITULATION of a few of the advantages that may be derived by following out the proposed "New System of Managing Extensive Iron-works"—viz.: 1. The real cost of all things would be accurately ascertained, and their minimum cost price also.—2. The ironmaster would always be insured the best results, in yield, quality, and cost, his raw materials can produce.—3. Wear and tear of tools and machines, and the consumption of all materials and labour, would be reduced to the least possible amount; and thieving to an incalculable extent radically prevented.—4. Every individual employed about the works would be paid "according as his work may be," and every honest and industrious man would be ensured a "fair day's wages for a fair day's work."—5. Ironmasters would be exempt from the loss, plague, and trouble of having litigious, incompetent, or improper hands upon their several premises.—6. All disputes with, or strikes of workmen would be entirely avoided; and every operative and agent be fairly promoted, according to their integrity, conduct, and skill.—7. The best talents and labour will always be at the command of the ironmaster, who will, at all times, be at a certainty as to quantity, quality, yield, and cost of all his objects of manufacture.—8. A greatly improved race of managers and operatives would be originated, and constantly retained, for the service of the ironmaster; and all out-of-sight processes would be conducted with equal precision, care, and economy, as if immediately under the master's eye. The accomplishment of these, and many other important advantages, would be the sure fruits of carrying into practice the improvements in iron metallurgy herein recommended.

S. B. ROGERS.

EXPLOSIONS IN COLLIERIES.

SIR,—In the year 1835, when the inquiry was instituted to which I alluded last week, it was ascertained, beyond all doubt, that the mode of ventilation then adopted, and still existing, was defective; that, in addition to the destructive elements, "fire-damp" and "choke-damp," evils existed of a remediable character; and, amongst others, the necessity of additional shafts in cases of extreme lengths of excavation, was clearly pointed out; but which has been continued on day by day from that time, a period of fourteen years, and many mines then requiring additional shafts are still working on with one only—the secret of which must be exposed. It is in evidence, by a perfectly competent witness, who, immediately after acknowledging the cause of danger, significantly added, "When gentlemen have expended 50,000, or 60,000*t*, in sinking one pit, it might not be convenient to expend 20,000*t*. more in sinking another, MERELY to avoid the chance of any accident which might eventually happen." I believe this witness admired the truth, and, therefore, he would not conceal the fact, that the consideration of life was but secondary to the profits of the concern; or, in other words, it would be more convenient to bury fifty, or fifty times fifty, victims to explosions, than to incur an expense of 20,000*t*. in sinking another shaft! but work on ad libitum in some mines; although the same witness, in answer to the very next question, admitted that there were no less than five shafts for the ventilation of 100 acres in Wall's-End Colliery. These are facts which have hitherto escaped the notice of the Legislature; but which must not be suffered to pass by unnoticed "when the good time comes." If the produce of one colliery will bear the expense of an additional shaft to every 20 acres excavated, there can be neither reason nor justice in exposing the working men and boys to hourly destruction, by excavating hundreds of acres with one shaft only.

Scarcely a Number of the *Mining Journal* is issued that does not contain a record of great devastation of life from this cause—too faithful a portrait of the misery endured by the widows and fatherless children of the destroyed—some suddenly snatched away by the effects of fire-damp; others from choke-damp, &c. But what are the preventive means adopted? It is well worth reflection! Notwithstanding the well-known inflammable qualities of carburetted hydrogen, and which is powerfully combustible, with an estimated admixture of atmospheric air, a fiery furnace is brought into requisition, which I have seen more than 1600 ft. beneath the surface of the earth in its burning fury, and over which the majority of this dangerous gas must pass. Incredulous as this may appear to those unacquainted with the subject, perhaps they will be even more incredulous to the fact, that carbonic acid gas, or choke-damp, so extensively yielded in some mines, has the effect of extinguishing fire, and which is well known to have deprived them of their boasted means of safety, by putting the furnace fire out! Nor can they deny, that from a emanation of hydrogen gas being discovered, with which the atmosphere of a mine has been too greatly impregnated by the former, as it will be very trifling; and if the timber is properly *Panzied*, we may presume upon a very considerable durability. With regard to his suggestion to make the bearings shorter, as the piles contain the larger part of the timber, the multiplying them would increase the expense without gaining a correspond-

official documents, which I prize much, and from which I need not depart. Notwithstanding a careful watch upon the various changes in the atmosphere, no one dared attempt to relight it by hand; and, after a lapse of six weeks, it was accomplished! But how?—by running a line from the top of the shaft to the furnace beneath, which is covered with tar and various combustibles, and slipping a red-hot ring down the line to the combustibles beneath; and thus their landed and cherished life preserver was set in motion!!

So much for the sagacious miners of the north; so designated by my now silent vituperator, "A Viewer," of Houghton-le-Spring. Let us now see what the very majesty of viewers says upon the subject of improvement—"I think it is from science, or rather from genius, that we have anything more to expect! I do not think we are the persons to discover any new light! I would rather look to some person of genius or science who is not an immediate collier; and I think it is more likely that something might be elicited in that way, than by those going on daily in the working of the mine!" The greatest improvements have been made in most businesses by people not immediately concerned in them!" Such was the opinion of the late Mr. Budde.

In the present enlightened age, when discoveries of the most useful character to the commercial interests of this country, and to the public generally, are of almost daily occurrence, it is to be regretted that the precarious life of a miner has so long escaped due observation, notwithstanding the many appalling calamities from explosions in mines being so frequently brought under notice by means of that all-powerful agency—the public press. Whatever the evil may have been which has so long, and so successfully baffled the skill of the scientific men connected with this considerable branch of trade, remorselessly slaying, as it has done, its thousands, and probably tens of thousands, of our fellow-creatures, let it no longer be said, that in the whole of the United Kingdom talent enough cannot be found to overcome the difficulty. The subject has been too long confined to one class of the scientific world, but who are evidently unable to keep pace with these times of improvement. This was acknowledged 14 years ago; I, therefore, invite men of sound intellectual power to the pleasing, though somewhat difficult, task of insuring the life of a miner, as securely as that of any other individual whose occupation is so widely different. Unfavourable opinions upon everything new, anonymously expressed, must be expected, but be not silenced by such means. I have no doubt that whenever the public mind is properly directed, and brought to bear upon this subject, the evil will speedily be removed, not only will the furnace be dispensed with, but, in all probability, a substitute will be found for the present means of lighting a mine, thereby preventing the possibility of explosion, provided neither candle or lamps be needed."

Still the removal of choke-damp must be accomplished; and I fearlessly assert that I have already suggested the means of effectually removing both fire-damp and choke-damp; and lest it should not be understood, I had intended, as promised, to detail more minutely this week the particulars of my scheme; but my enthusiasm has led me beyond the bounds of your space to do so; it must, therefore, form the subject for a future Number. After which, should the same repugnance exist, as hitherto exhibited, against putting it to the test, I shall feel myself justified in concluding, that it arises from a fear of self-condemnation on the part of the managers themselves, though they ought not to be jealous of others in attempting that which time and experience have proved them to be incompetent to accomplish. I would recommend them to bear in mind, that might against right cannot last for ever! and I should be pleased to find a few others enlisted in this good cause, who, like myself, would fearlessly throw conviction in the teeth of all those who persist in their present practice, in which case the poor, miserable, jeopardised labourer would rejoice in the prospect of obtaining justice and safety. By these means of exposing facts, the proprietors themselves will soon become acquainted with long-existing grievances on the part of those to whose dangerous occupation they may attribute their own wealth—facts which it is to be hoped, for the sake of humanity, they have hitherto been ignorant of; and when enlightened upon the subject, and become familiarly acquainted with the many unnecessary dangers to which their labourers have been exposed, they will, I have no doubt, be found foremost in promoting their future welfare. Such, at least, is the fervent hope of—C. COLWELL.

Borough-road, Southwark, Oct. 4.

ON THE GENERAL SYSTEM OF ATMOSPHERIC TRACTION.

SIR,—The perusal of Mr. Curr's last letter convinces me that the points of difference between us are not very great; nor should I trouble you with any further remarks upon the subject, but that I am in a measure compelled to do so by the concluding observation of your correspondent, I will, however, be as brief as possible. I stated in my last, that the maximum resistance offered by the air-pump might be fairly taken at 15 lbs. per square inch—the minimum at 2*1/2* lbs. Mr. Curr considers this estimate as incorrect, and substitutes for these two quantities 10*1/2* lbs. and 0. With the barometer at 20 in, and all considerations of friction excluded, his estimate is true. Mine, however, was founded upon other considerations. The practical extreme of exhaustion obtained in Mr. Stephenson's experiments was equal to a barometrical indication of 25*1/2* in. (see Report, p. 22): this is equal to a pressure of 12*1/2* lbs. The friction of the air-pump, together with the resistance offered by the valves, as well as by the air itself, at the high velocity of action involved under such circumstances, will not be considered as over-rated, if taken at 2*1/2* lbs. per square inch. This, then, gives the minimum resistance, and 2*1/2* + 12*1/2* = 15 lbs. the maximum, as before stated.

The observation, however, which calls for special comment, is the following:—"The idea of pumping back the condensed air into the reservoir, after having fulfilled its office, although practicable, is, I think, doubtful as to the beneficial effect of such operation, unless the capacity of the reservoir be made infinite; but should I be herein mistaken, I judge the same principle, whatever it may be, which effects such purpose, will be applicable to pump the steam, after it has fulfilled its office in the steam cylinder, back into the boiler."—(*Mining Journal*, Sept. 29). Now, I am quite certain that Mr. Curr has got too much sense himself to suppose that any advantage could possibly result from "pumping the steam after it has fulfilled its office in the steam cylinder back into the boiler," and I am, therefore, at a loss to understand why he should attempt to addle such a silly idea upon me, or any idea whatever involving such a ridiculous inference. The intention of the patentee, as stated by me, is sensible, to say the least of it; the parallel absurd.

ISHAM BAGGS.

London, Oct. 4.

CLARKE AND MOTLEY'S NEW RAILWAY SYSTEM.

RESPECTED FRIEND.—In reply to your correspondent, J. Weston, I hardly think he has allowed himself time in considering the subject of our patent railway (not track), and, therefore, I will endeavour to show him wherein he is mistaken. He seems to favour the idea that, by dividing the bearing plane in the manner proposed, I lose a considerable degree of sustaining power; this would be the case if the planks were not fastened together. Let me advise him, to provide himself with two strips of wood (say, 1*in.* by fully *1/2* in.) about 3 ft. long; then provide two blocks to represent the head of the pile, in which are notches, to receive the beam (say, *2* in. deep, and fully *1/2* in. wide), in which to lay the two strips of wood; let him then provide himself with two strips of iron, *1* in. wide, with holes 2 in. apart; let the pile heads be 24 in. from centre to centre, and then fix the two strips of iron to join halfway between the piles, and screw with fine screws both strips of wood together from pile to pile, only omitting to put screws in the parts extending beyond the piles; then let him load the centre to find what deflection a given weight will produce; having done this, then let him provide himself with a strip, 24 in. long, 1 in. by fully *1/2*, and insert in the room of the former, to see what deflection the same weight will produce on the solid strip, and I think he will find the difference scarcely perceptible; let him then remove this, and refix the former, and screw together the parts that extend beyond the piles; then, presuming the ends to be held firmly down, I think he will find the spliced beam bear from 30 to 50 per cent. more than the solid beam, because the compression property is greatly diminished, so that the beam becomes nearly all tension—in fact, by splicing in the manner proposed, it may be considered a timber combination, as no material deflection can be made, by reason of its continuous connection. As to his idea of weakening the beam by the dovetailing the cross-tie, is he not aware that making holes, or dovetails, in the upper part of beams, if the same holes, or dovetails, are properly filled up, does not tend to weaken them? And with respect to his idea about the inconvenience of repairing, that is hardly worth a thought, as it will be very trifling; and if the timber is properly *Panzied*, we may presume upon a very considerable durability. With regard to his suggestion to make the bearings shorter, as the piles contain the larger part of the timber, the multiplying them would increase the expense without gaining a correspond-

ing advantage. Under these circumstances, I trust he will excuse me in not availing of his kind offer. In my description of our timber tracks, I forgot to mention that the triangle tracks are intended to be bedded in concrete, with the upper surface flush with the surface of the road. The grooves, as shown in the drawing, to be filled with fine gravel, or sand, whereby preventing as much as possible the tendency to slipping, and give greater effect to the tractive power of the driving-wheels.

Stangate, Lambeth, 9 mo. 30.

THOMAS MOTLEY.

P.S.—In consequence of some alteration in our design of the steam-carriage, the promised engraving of it must be delayed for a short time.

COPPER SHEATHING.

SIR.—It is obvious, from Mr. Prideaux's letter of the 25th Sept., that the result of those important inquiries respecting copper sheathing will ultimately be of benefit both to the smelter as well as the shipowner. It would appear also that the little information I gave through your columns of the 13th Sept. is of some importance to him; and as that gentleman promised, in a former communication, to give such alternate information as might be solicited, with some exceptions, perhaps, Sir, you will perceive that I am not at all inconsistent in putting one question—viz.: If Mr. Prideaux doubts the propriety of putting *native* or *malleable* copper, which is quite free from any earthly matter, into the 7th process, will he be good enough to explain what concomitant matters they contain, and which process he would prefer putting them into? This information would be of some service to us. I trust that this is not an unreasonable question, and that it is entitled to, and will receive, a specific answer, so as to ensure further inquiries going forward without the least interruption.

OCT. 2.

A ROASTER MAN.

IMPROVEMENTS IN SMELTING COPPER.

(Specification of patent granted to Francis Hay Thomson, M.D., Hope-street, Glasgow, for an improvement or improvements in smelting copper or other ores, * sealed March 14.)

This invention consists in the application of whinstone, or iron slag (which is of a similar nature to whinstone), or trap, basalt, syenite, or other stones of the same character as whinstone, being fusible silicates, as a flux in the smelting of copper ores, whether the ores be sulphurites, carbonates, or oxides. The invention is carried out as follows:—Suppose the ore to be a sulphuret, containing 20 per cent., or upwards, of copper, and the quantity to be operated upon to be one ton, which had been previously calcined, and is placed in an ordinary reverberatory smelting furnace. To this quantity of ore, 400 pounds of whinstone, broken into small fragments, and 70 pounds of coarsely pulverised coke are to be added, and the operation of smelting is conducted in the ordinary manner. The process is stated to be improved by the employment of barilla, in addition to the whinstone and coke; but, in this case, the quantity of whinstone is reduced; thus, for a sulphuret copper ore, containing 20 per cent. of copper and upwards, if 37 pounds of barilla be used, it will only be necessary to employ 200 pounds of whinstone. If the ore be a carbonate or oxide, containing 20 per cent. of copper or more, the whinstone and coke are to be used in the proportions above given; but, in addition thereto, the patentee introduces into the smelting furnace 56 pounds of limestone, and 20 pounds of oxide of iron; the operation of smelting is conducted in the same way as when a sulphuret ore is being treated; but the carbonate or oxide copper ores do not require to be first calcined. Barilla may also be used with advantage when carbonate or oxide ores are to be operated upon; and then only half the above-mentioned quantities of limestone and oxide of iron will be required. When the ore, whether sulphurites, carbonates, or oxides, contains less than 20 per cent. of copper, the proportion of whinstone above given is to be reduced one-third.

Instead of whinstone, iron slag, or trap, basalt, syenite, or other stones of like nature to whinstone, may be employed in the same proportions. With regard to the other substances before mentioned, the patentee states that he does not confine himself thereto, as he has merely given them as examples of the classes of substances which he intends to employ; and he would use other substances of the same classes, if circumstances should render it advisable; thus the object to be attained by the use of coke is to introduce carbon into the furnace; and, therefore, coarse charcoal or anthracite coal might be substituted. Instead of oxide of iron, calcined black-band ironstone or carbonate of iron might be employed; and kelp might be substituted for barilla.—The patentee claims, as his invention, the improvements in smelting copper ores by the use of what is commonly called whinstone or other like stones, broken into fragments, or by the use of what is commonly called iron slag, all having carbon added, and either with or without alkali—as an improved flux.

* By a disclaimer, dated 14th September, 1848, the patentee has erased the words "or otherwise" from the title of his patent.

ON PYROGEN.—No. XVI.

In explaining some peculiarities of the electro-tonic state, Prof. Faraday says, in the series of communications already referred to in these papers (*Philosophical Transactions*, vol. cxxii.), "The state appears to be constantly assumed, requiring hardly a sensible portion of time for that purpose. The difference of time between volta-electric and magneto-electric induction, rendered evident by the galvanometer, may probably be thus explained:—When a voltaic current is sent through one of two parallel wires, as those of the hollow helix, a current is produced in the other wire, as brief in its continuance as the time required for a single action of the kind, and which, by experiment, is found to be immeasurably small. The action will seem still more instantaneous, because, as there is an accumulation of powers in the poles of the battery before contact, the first dash of electricity in the wire of communication is greater than that sustained after the contact is completed; the wire of induction becomes at a moment electro-tonic to an equivalent degree, which the moment afterwards to the state in which the continuous current can sustain it; but, in striking, causes an opposite induced current to that at first produced. The consequence is, that the first induced wave of electricity more resembles that from the discharge of an electric jar than it otherwise would do; but when the iron cylinder is put into the same helix, previous to the connection being made with the battery, then the current from the latter may be considered as active in inducing innumerable currents of a similar kind itself in the iron, rendering it a magnet. This is known by experiment to occupy time, for a magnet so formed, even of soft iron, does not rise to full intensity in an instant; and it may be because the currents in the iron are successive in their formation or arrangement. But as a magnet can induce, as well as the battery current, the combined action of the two continues to evolve induced electricity, until their joint effect is a maximum; and thus the existence of the deflecting force is prolonged." The phenomena here detailed are explained by the properties of the electric matter; for the difference of time observed between the volta-electric and magneto-electric inductive effects can only be accounted for by the existence of pyrogen, which cannot enter at once into the substance of the iron, but requires a certain space of time to develop its effects in the metal, which, if the electric fluid were merely an immaterial power, could not be necessary. The return current in the experiment with the hollow helix, and considered by Professor Faraday to arise from "the first dash of electricity in the wire of communication being greater than that sustained after the contact is completed," can only be accounted for by the existence of a material agency; for to suppose that an immaterial agent could obtain an impetus of the kind is scarcely compatible with received knowledge on the subject. It will be observed that this new degree, or state of polarization, is not that which the particles of pyrogen would assume if caused upon solely by either the earth or the wire of communication, but is the result of the combined influence of the terrestrial and artificial currents. Hence the polarised state, or rather the position of the particles assuming, varies according to the strength of the artificial current. The height and intensity of the electro-tonic state fluctuates according to the power of the latter, it being greater at the first rush of the accumulated fluid than afterwards. When a disc of copper, says M. Ampère, was suspended by a thread, and surrounded by a helix or spiral, and when the charge of powerful voltaic battery was sent through the spiral, a strong magnet was at the same time presented to the copper disc, the latter turned at the moment to take a position of equilibrium, exactly as the spiral itself would have turned, had it been free to move. In this experiment we see distinctly the mechanical influence of the electric matter, which holds the copper-disc so completely in its grasp, as it were, that when the pyrogen moves to meet, or coincide, with the currents of the magnet, it carries metal with it. But for the existence of the electric matter this effect could not be produced, for the polarization of nothing is as great an absurdity as mechanical power and motion originating from nothing.

J. J. LACE.

STATISTICS OF COPPER, TIN, AND LEAD.

The third period of the current year having arrived, in which it is our usual practice to take a review of the progress of our mining industry, it is with much pleasure we lay before our readers the results of the sales of copper ores in Cornwall and at Swansea, by public ticketing, as showing a gradual and satisfactory improvement over the earlier periods of the month of September and of the year. On a comparison of the sales of copper ores in Cornwall, in the quarter ended 30th Sept. last, with those of that terminated on 30th June, the result is as follows:

Quarter	Ore.	Money.	Aver. price.	Av. Prod.	Fine copper.
ending	21 cts.	£ s. d.	£ s. d.	per cent.	Tons cut.
Sept. 30, 1848	37,103	194,495 11 6	5 4 10	8,066	2992 17
June 30, 1848	36,631	187,167 15 6	5 2 8	8,026	2906 14
Increase	472	£7327 15 0	£0 2 8	1-6	86 3

From which it at a glance appears that a considerable improvement has taken place in the market value of the ore, for, while the general produce has improved only by a mere trifle, the price has advanced 2s. 8d. on 5s. 2d., or nearly 23*1/2* per cent.

An equally satisfactory comparison will be made with the quarter ended September 30, 1848, which will stand as follows:

Quarter	Ore.	Money.	Aver. price.	Av. Prod.	Fine copper.
ending	21 cts.	£ s. d.	£ s. d.	per cent.	Tons cut.
Sept. 30, 1849	37,103	194,495 11 6	5 4 10	8,066	2992 17
Sept. 30, 1848	36,631	175,509 16 6	4 10 6	8 1	3053 14

Decrease 1,923 Inc. £18,885 14 0 Inc. 0 5 8 Dec. 0 4 Dec. 90 17

Showing that, with a decrease in quantity of 1923 tons, as also in produce, there has been an increased price obtained of 5s. 8d. per ton, and a total surplus of 18,885*1/2*.

In the sales by ticketing, at Swansea, there has been a considerable decrease, principally attributable to the falling off in the importation of Australian ores, which falling off may doubtless be traced to the measures taken by the colonists for smelting the Burra Burra ores on the spot. The results of the sales during the quarter just ended, as compared with that ended June 30, are as follows:

Quarter ended	Tons of Ore.	Money.	Average Price.
Sept. 30, 1849	9,563	£104,914 1 6	£12 0 4
June 30, 1848	14,925	206,206 8 0	13 16 4
Decrease	Tons 5,362	£101,922 6 6	£ 1 16 0

And with the corresponding quarter of the previous year as follows:

Quarter ended	Tons of Ore.	Money.	Average Price.
Sept. 30, 1849	9,563	£104,914 1 6	£12 0 4
Sept. 30, 1848	15,143	161,583 16 0	10 13 4
Decrease	Tons 5,580	£ 56,679 14 6	Inc. £ 1 7 0

A result which is, at least, so far calculated to allay those fears which were, we think, as we have before expressed, unnecessarily raised, that the reduction of the duties on the importation of foreign copper ores would divert the capitalist from the development of our home mines, and thus bring destruction on the industrious and hardy population in the metalliferous districts of Cornwall and Devon. We sincerely trust a brighter sun is rising o'er our mining horizon, and that the present gradual and legitimate improvement may prove the harbinger of still greater prosperity.

The above quantity of copper ores sold at the Swansea ticketings, were made up as follows:—

21 cts. Ore.	Money.	Average Price.
Foreign	6,455	£86,926 16 6
Irish	289	18,126 6 6
Welsh and sundries	200	860 18 6
Total	Tons 9563	£104,914 1 6

The following table shows the amount of foreign ores sold in the past quarter, the countries from whence imported, and the quantity sold in the quarter ended June 30:—

Country.	Tons.	Amount.	Av. Price.	Country.	Tons.	Amount.	Av. Price.
Colombia	3905	£40,939	1 6	£12 11 2	6096	£72,494 11 6	£11 17 10
Australia	900	16,353	1 6	18 3 4	4294	89,154 14 6	20 10 6
Santago	759	9,268	4 6	12 4 2	353	5,602 12 0	15 17 5
N.Zealand	572	7,359	17 0	12 17 4	851	9,966 8 0	11 14 7
Chili	307	3,111	11 0	10 2 9	—	—	—
	12	695	2 0	58 1 8	201	4,572 14 6	22 15 0
		6,455	£86,926 16 6	£13 5 3	11795	£181,811 0 6	£15 8 5

The following table shows the produce of the principal copper mines of Cornwall, sold at public ticketings, with the average price per ton, number of ticketings, and amount of money received:—

Mines.	Ticketings.	Tons.	Amount.	Av. price.
Devon Great Consols	3	3546	£22,673 18 6	£6 9 0
Carry Bras	3	2631	17,297 8 0	6 11 6
Great Consolidated	4	2732	15,929 5 5	5 12 6
United Mines	3	2835	10,525 14 6	3 14 4
Par Consols	6	1808	10,034 16 5	5 10 0
North Roscar	2	1884	8,470 13 0	4 9 11
Fowey Consols	6	1444	8,043 4 6	5 11 4
West Caradon	3	961	7,060 18 0	7 7 9
North Pool	3	1441	5,858 0 6	4 1 4
South Caradon	3	748	5,166 14 6	6 18 2
Wheel Seton	3	1168	5,072 13 6	4 7 2
South Wheal Frances	3	536	3,031 0 6	9 7 9
Tywardhail & Nancekuke	3	1267	5,016 0 6	3 14 1
Wheal Friendship	3	616	4,847 13 0	7 17 4
Tincroft	3	1358	4,791 18 0	3 10 7
Treviseley	3	768	4,644 13 0	6 9 3
Levant	3	658	4,273 0 0	6 9 10
South Wheal Bassett	2	525	3,78	

New Patents.

[From the *Mechanics' Magazine* of this day.]

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

R. Gordon, engineer, Heaton Norris, Lancaster: Improvements in the ventilation of mines. Mr. Gordon remarks, that the present system of furnace ventilation in coal mines is uncertain and dangerous, in consequence of the liability of the attendant to be rendered heavy and sleepy by the inhalation of noxious fumes, so as to neglect his duty, and of the temperature of the current of air to become lowered by the water which oozes through the strata, whereby, if the barometer suddenly falls, or an eddy forms in the up-cast shaft, the ventilation will be stopped; and, lastly, of the fire being put out by choke damp. Now, this invention has for its object to prevent accidents to the miners from the occurrence of any one of these circumstances, by closing the mouth of the up-cast shaft, and leading the air from it to the ash-pit of the steam boiler furnace, the door of which is closed, in order that the air necessary for combustion may all be drawn from the mine. Communication is also opened between the mouth of the up-cast shaft and the chimney direct, for the purpose of enabling the attendant, who will be under the observation of the bank inspector, to prevent such quantity of gas as would put out the fire from passing to it, and causing it to flow into the chimney, up which it will be drawn by the draught from the fire, the furnace door being opened for that purpose. The patentee also proposes to close the shafts when the miners are absent, and to exhaust as much of the contents as possible, so that the deleterious gases which lurk in the crevices of the mine may be drawn out and adulterated by allowing a current of air to rush in suddenly and mix with them.

Claim.—The construction and arrangement of a chimney with furnace or furnaces in connection with the up-cast shaft of a mine, to obtain more perfect ventilation than at present, including the closing of the down-cast shaft, as occasion may require.

J. T. Wilson, Glasgow: Improvements in the manufacture of sulphuric acid and alum. This invention consists in employing a glass chamber, instead of a leaden one, in the manufacture of sulphuric acid. The chamber is to be constructed of sheets or panes of glass, of a thickness indicated by one square foot, weighing 16 oz., and of any convenient length and breadth, which are supported in a suitable framework of yellow pine, free from knots. The bars have recessed in them to receive the panes, and are protected from the action of acid and heat by glass plates of glass, which are cemented to the inside surface, and secured them by glass pins or screws. The joints between the panes themselves and between them and the flasks, are ground, so that they may fit closely together, and are, moreover, rendered perfectly tight by a lutine being brushed over them. The cements and lutines should, of course, be such as would not be affected by the acid or heat. In manufacturing alum, according to Mr. Stoen's process, patented 1845, it has been customary to heat the liquor employed to digest the shale by passing steam through them when all placed in the same vessel, but this mode was attended with this inconvenience, that the liquor could never be raised to a temperature sufficiently high to dissolve all the shale. Now the improvements under this head consist in heating the liquors, in a separate vessel, to 150 or 300° Fahr., and then running it upon the shale.—2. It has been usual to dilute the sulphuric acid with the mother liquors repeatedly, whereby a considerable portion of the acid is thrown out and lost, in consequence of its combination with alumina and iron. The patentee, therefore, proposes to mix them with the ammonical liquors of gas-works, to form sulphate of ammonia, which is afterwards mixed with the sulphate of alumina, whereby the fresh and previously-formed alum is deposited.

Claims.—1. The use of glass in pieces, frames, or sheets, to construct the chambers used by sulphuric acid makers (or other vessel for the same purpose), of whatever form or size, so as to present to the interior a glass surface.—2. Heating the liquors employed in digesting shale in a separate vessel.—3. Mixing the mother liquors with ammonical liquors, to form sulphate of ammonia.

C. Green, patent brass tube manufacturer, Birmingham; and J. Newman, manufacturer, Birmingham: Improvements in the manufacture of railway wheels. A bar of iron is bent into a circle, and the edges welded together. It is then placed in a bed die, constructed so as to receive the periphery and flange of the wheel, and subjected to the action of a top die, which is hollowed out into the shape of a dome, where the upper or plain end of the hoop will be bent inwards; after which it is passed through a series of dies, each having its dome of a lesser curve than the preceding, until the last assumes the appearance of a level surface, and forms the flat centre of the wheel—the hole to receive the nave. The nave is then punched, but leaving the edges ragged in order that the two surfaces may more readily and effectually combine together. The nave is composed of a cylinder, in two pieces, which is placed in the central hole of the wheel, and over a mandrel fixed in the bed die. It is then subjected to a series of top dies for the purpose of welding it to the disc, and of giving it the required form; care being taken to place in the first instance a moveable ring round it, between the disc and bed die, for the purpose of confining it within certain limits.

Claim.—The mode of manufacturing the peripheries, centres and navs of railway wheels.

W. Duckwell, civil engineer, of the Artificial Granite Works, Battersea, Surrey: Improvements in compressing or solidifying fuel or other materials. This invention consists in solidifying and compressing fuel, by percussion, into blocks suitable for stowage. The fuel (coke for example) when reduced to a granulated state, and moistened with water, or by the humidity of the atmosphere, is placed in a stout cast-iron cylinder, faced on the inside with wrought-iron or steel, and subjected to the action of a steam hammer of three tons weight, and making 50 strokes a minute. It is stated that it has been found advisable not to force the block of fuel out of the cylinder immediately after the stroke. And for this purpose a piece of iron is, in the first instance, placed in the cylinder and allowed to rest upon a prop, which works up and down like a piston in a steam cylinder, and is securely supported against the bottom of the iron at the extremity of the up-stroke, during the moment of percussion. The descent of the steam hammer drives out the iron block, and forces the powdered fuel, which was placed above, into its place, whereby it will be compressed and solidified. The iron block is then laid aside, and the compressed fuel separated from that in powder, which is above, by the interposition of an iron plate. The blocks of compressed fuel are subsequently dried by exposure to the atmosphere, or to heated air. When the granulated fuel is too dry or too moist, which would destroy the effect of impact, it will soon be made manifest by the escape of a quantity of powder, or by the exudation of moisture through the side; but the experience of the workman will soon enable him to arrive at a knowledge of the degree of moisture which is requisite to insure its successful working of the invention.

Claim.—Compressing and solidifying fuel in moulds by percussion.

H. Howard, Railway-place, Fenchurch-street, London: Improvements in the manufacture of glass, also in the construction of furnaces for melting and fining the same. This invention consists in placing the descending flues either behind or before the pots, and in contracting the furnace so as to maintain the flame on a level with them, and by these arrangements cause the heat to encircle and impinge against the pots, thereby effecting a uniformity of temperature and facilitating the melting process. The descending flues are represented as being placed in the four corners of the chamber appropriated to the reception of the pots, which are placed between them and the furnace. The patentee shows the application of his invention to a three and five-pot furnace; and also a double furnace arrangement, with a number of holes for feeding in the fuel, and "tearer holes" to permit of access to the pots.—2. It is proposed to place a thin sheet of platinum above the furnace, supported in a suitable manner, in order to prevent the "droppings" falling from the crown into the refining pots.—3. The annealing furnace is constructed with the flues in the centre, on a level with the bottom, and with holes in the top, for the purpose of cooling down the metal, and admitting light when the contents are to be removed.

Claims.—The peculiar construction of furnace for melting and casting glass, in which the flame is made to encircle and impinge directly against the sides of the pots, effecting thereby uniformity of heat, and an improved quality of material.—2. In the portability of the construction of furnaces for melting glass, with one or more working holes.—3. The adaptation of a sheet of platinum to the crown of melting and refining furnaces, to prevent the droppings falling into the pots.—4. The peculiar form and construction of an annealing furnace with flues in the centre near the bottom, and holes in the top for allowing the heat to escape, and admitting light when emptying it of its contents.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

J. Higgins, Salford, Lancaster, machine maker, and T. S. Whitworth, Salford, aforesaid, mechanist, for certain improvements in machinery for preparing, spinning, and doubling cotton, wool, flax, silk, and similar fibrous materials.

W. Jamison, Ashton-under-Lyne, Lancaster, machine maker, for certain improvements in looms for weaving.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

J. Gray, Edinburgh, gray dish.
W. F. Padwick, Southampton, garden drill.
Gray and Keen, Liverpool, mural log timer.
J. B. Winder, Birmingham, envelope.

J. Human, C.E., March, Cambridgeshire, water elevator.

ARTIFICIAL MAHOGANY.—The following method of giving any species of wood of a close grain the appearance of mahogany, in texture, density, and polish, is said to be practised in France with success. The surface is planed smooth, and the wood is then rubbed with a solution of nitrous acid; one ounce of dragon's blood is dissolved in nearly a pint of spirits of wine; this, and one-third of an ounce of carbonate of soda, are then to be mixed together, and filtered, and the liquid in this thin state is to be laid on with a soft brush. This process is to be repeated, and in a short interval afterwards the wood possesses the external appearance of mahogany.

THE ROYAL BRITISH BANK.—The directors have issued a circular of the terms of business to be adopted upon the opening of the bank, which is speedily to take place: 1 per cent. is to be allowed on all drawing accounts, constant for six months, of 100L and upwards, and 2 per cent. on all accounts exceeding 200L. On deposits for six months, whatever may be their amount, 3 per cent will be allowed. Cash credits will be granted to respectable parties with two sureties, at 5 per cent., and 1 per cent. commission.

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Carr's Hartley 16—East Adairs Main 13 2—Hastings Hartley 16—Holywell Main 16—Ord's Redheugh 15—Tansfield Moor Butts 13 6—West Hartley 16—Wall's End Bewicks and Co. 18—Hodley 17 9—Braddell 18 6—Lambton Primrose 18 3—Braddell 19—Heston 19—Hutton 17 9—Stewart's 19—Hartlepools 18 2—West Hetton 18 3—St. Helen's Tees 17 9—Tees 19—West Cornforth 18 3—Graigola Birchgrove 20 6—Nixon's Merthyr and Cardiff 21 6—Ships at market, 41; sold, 34.

WEDNESDAY.—Hastings Hartley 17—Holywell Main 16—Tansfield Moor Butts 13 6—Townley 15 6—Wall's End Clarke 16 6—Gibson 17 9—Hedley 18—Hilda 18—Heaton 18 3—Hobburn 17 9—Harton 17 9—Percy 17—Ridgell 17 9—Lambton Primrose 18 3—Braddell 19—Heston 19—Hutton 17 9—Stewart's 19—Hartlepools 18 2—West Hetton 18 3—St. Helen's Tees 17 9—Tees 19—West Cornforth 18 3—Graigola Birchgrove 20 6—Nixon's Merthyr and Cardiff 21 6—Ships at market, 41; sold, 34.

FRIDAY.—Carr's Hartley 17—Hastings Hartley 17—Holywell Main 16—Tansfield Moor 14—Townley 15 6—Wall's End Benham 17—Hedley 18—Hilda 18—Heaton 18 3—Morrison 18 6—Ridgell's 19—Eden Main 18 6—Lambton Primrose 18 6—Plummer 19—Caradoc 16—Hartlepools 18 6—West Hetton 18—Adelaide Tees 15—Gwaelor Cae Gurwin Steeple 25—Nixon's Merthyr 21 6—Ships at market, 24; sold, 22.

OXFORD, WORCESTER, AND WOLVERHAMPTON RAILWAY.

The directors of this company have issued their promised reply to the charges made by implication against them in the report of the committee of investigation, recently published in the *Times*. With reference to the allotment of the company's shares when at a premium, the directors refer to the protracted contest which ended in the passing of the Oxford, Worcester, and Wolverhampton Railway Bill, and state that the 7000 shares remained unallotted when the bill passed the committee of the Commons; the shares then rose to a premium, and it became the duty of the directors to allot them without any delay, before any reverse should occur. It was legally impracticable for them to issue them at a premium before the incorporation of the company; they could only have been allotted to individuals upon trust for this purpose, on condition of the premiums being handed over to the company when legally in a condition to receive them; and if the bill had been lost the trustees would have been responsible. The directors urge that no such parties could have been found to assume the responsibility, and, "as the object of the directors was to win the bill, and not become dealers in shares, it was eventually determined to allot these shares in the usual mode among those persons who had borne the heat and burden of the day, and who were, moreover, expected to bear it to the end." The directors also declare that "several of the larger recipients used them more for the purpose of securing the necessary support for the eventual success of the bill than for any object of pecuniary advantage to themselves." As the Santa Staffordshire shares, they were allotted amongst most of the directors of the Oxford, Worcester, and Wolverhampton Company "as chosen to take with them the condition of holding them," the two allotments being mutually dependent on each other. The directors add, "It is believed the whole greater portion of these shares are now held by the original allottees." These are at a discount of about 47 10s. per share.—2. As to the second charge, the directors justify their mode of keeping their accounts, and append to their report a copy of a letter from Mr. Norton, the auditor's accountant, who is judicially examining the books of the company, and who expresses his opinion that no cash-book is required, "as all money is paid to the bankers, and all payments made by checks upon the bankers, except small amounts, which are entered in a petty cash-book." As to the third charge, of reckless improvidence in payments for land, rails, &c., the directors declare that the greatest possible economy was practised, and dwell on the difficulties which they, in common with the directors of other railway companies, met with in effecting land purchases. They do not deny that the contracts entered into for the purchase of rails have proved prejudicial to the interests of the company in their altered circumstances, and the delay that has taken place; but the directors observe that the contracts were made at the suggestion of Mr. Brannel, engineer, upon an apprehension that prices would rise, in consequence of the number of railways to be constructed. As to the fourth charge, the directors review the state of the company's affairs when the company's Act was passed, and show that the original contract with the Great Western Company was for a lease at 3d per cent., on a capital of 1,500,000L.—the estimated cost of the line; while they had subsequently obtained an increase of the guaranteed to 4 per cent. on an increased capital of 2,500,000L. As to the finality of this bargain, the directors then believed that if this was found an insufficient capital to complete the line, the Great Western Company would still further extend their guarantee. The directors had been urged to complete the agreement with the Great Western Company, but had been divided in opinion, some of them thinking that "it was better to wait the ultimate cost of the line before any formal instrument was executed." The report thus winds up:—

"In conclusion, the directors have only to express their great regret that the labours of the committee, instead of being directed to the objects stated by Mr. Capel in his speech upon moving the appointment of the committee, when he stated that, 'the committee would act entirely in co-operation and confidence with the directors,' should have been expended chiefly in inflicting what they cannot but regard as useless and unmerited criticisms on their conduct and proceedings; and with no other practical result than in leaving the question of the affairs of the railway itself as they found it."

A RAILWAY CHAIRMAN IN A DILEMMA.—At a meeting of the Dundrum Railway Company, in Ireland, a few days since, it was moved that the chairman should be thrown out of the window; an amendment was proposed that he should be shoved down stairs; the original motion was, however, adopted, and was about to be carried into effect, when a general fight ensued, and directors and shareholders appeared next day at the police-office.

PUNCTUALITY TO TIME BY RAIL ENFORCED.—An Exeter solicitor, detained for an hour at the Starcross station on the South Devon line, was lately awarded 10s. damages by a jury, on the ground that an hour's delay in the arrival of a train, without good excuse, was actionable under the contract to carry passengers at a certain time, implied in the company's time-table.

RAILWAY CALLS.—The calls advertised for October amount to 1,046,749L—11,106L are on account of foreign companies. For the corresponding month of last year they were 1,693,655L. The total calls for the first 10 months of 1849 now amount to 17,700,964L, again 30,072,610L in the same period of 1848.

NORTH STAFFORDSHIRE—TRAFFIC RETURN.—Dr.: To working expenses, canal carrying, limestone getting, and depreciation fund, 13,780L 8s. 2d.; interest on debentures and canal shares, 6575L; estimated balance, available for dividend on share capital, 3475L 17s.; total, 23,831L 5s. 2d.—Cr.: By gross receipts of canal and railway for the month of Aug., 1848, 23,831L 5s. 2d.

GREAT WESTERN RAILWAY TO WINDSOR.—This company have made arrangements for opening their line from Slough to Windsor on Monday.

SOUTH WALES RAILWAY.—The works between Newport and Gloucester, are going on rapidly, and portions of the permanent way are being laid.

MADRAS RAILWAY.—The survey of the intended line of railway for Madras has been completed for a distance of 13 miles, and the results are favourable, so far as the engineering details are in question. The road is almost level, presenting a rise only of 4*f* per cent per mile, somewhat under 56 feet through the whole distance. For the first two miles out of Madras the soil is but indifferent, and will require to be strengthened. The next two miles is composed of very loose material, consisting of two parts of sand and one of clay; for a mile and a half further on, the ground is half sand and clay, after which the line runs through a soil well calculated to sustain the weight of the iron road.

WORKING EXPENSES.—The engine-drivers upon the Great Western Railway have, for the last five or six weeks been receiving, in addition to their wages, some 8s. per week per man as premium upon the amount of coke saved by them, below the amount fixed by the regulation table of the superintendent. We believe the next half-yearly accounts of this company will show that the line is worked at as low a rate as any in the kingdom.—*Railway Record.*

LOANS ON DEBENTURES.—The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.

By order, 128, George-street, Edinburgh, May 30, 1849. D. RANKINE, Treasurer.

Bristol and Exeter Railway—WHOLE SHARES. CALL FOR TEN POUNDS PER £100 SHARE.—Making with previous calls, £100 per share.

The directors of this company, under the provisions of the Act of Parliament, hereby give Notice, that the proprietors of £100 shares are required to PAY the sum of TEN POUNDS on each of their respective shares, in the two following instalments—viz.:

£2 per share on or before the 15th day of December, 1849; and

£2 per share on or before the 15th day of March, 1850.

At any of the undermentioned Banks—viz.:

LONDON—Messrs. Glyn, Halifax, Mills, and Co.

LIVERPOOL—The Bank of Liverpool.

MANCHESTER—Messrs. Lloyd, Entwistle, and Co.

BRISTOL—Messrs. Miles, Harford Battersby, and Co.

Messrs. Ballie, Ballie, and Co.

" Messrs. Stuckey and Co.

" The West of England and South Wales District Bank.

" The National Provincial Bank.

EXETER—The Devon and Cornwall Banking Company.

" The West of England and South Wales District Bank.

" The National Provincial Bank.

" Messrs. Sanders and Co.

Who are instructed to charge interest at 5 per cent. per annum on all arrears, and to allow interest, at the same rate, on all payments made before the above-mentioned dates respectively.

By order of the directors,

J. B. BADHAM, Secretary.

Bristol and Exeter Railway—THIRD SHARES. CALL OF FIVE POUNDS SIXTEEN SHILLINGS AND EIGHTPENCE per Third Share.—Making, with previous calls, £23 6s. 8d. per share.

The directors of this company, under the provisions of the Act of Parliament, hereby give Notice, that the proprietors of Third Shares are requested to PAY the sum of FIVE POUNDS SIXTEEN SHILLINGS AND EIGHTPENCE on each of their respective Third Shares, in the two following instalments—viz.:

£2 16s. 8d. per Third Share on or before the 15th day of December, 1849; and

£2 per ditto on or before the 15th day of March, 1850.

At any of the undermentioned Banks—viz.:

LONDON—Messrs. Glyn, Halifax, Mills, and Co.

LIVERPOOL—The Bank of Liverpool.

MANCHESTER—Messrs. Lloyd, Entwistle, and Co.

BRISTOL—Messrs. Miles, Harford Battersby, and Co.

" Messrs. Ballie, Ballie, and Co.

" Messrs. Stuckey and Co.

" The West of England and South Wales District Bank.

" The National Provincial Bank.

EXETER—The Devon and Cornwall Banking Company.

" The West of England and South Wales District Bank.

" Messrs. Sanders and Co.